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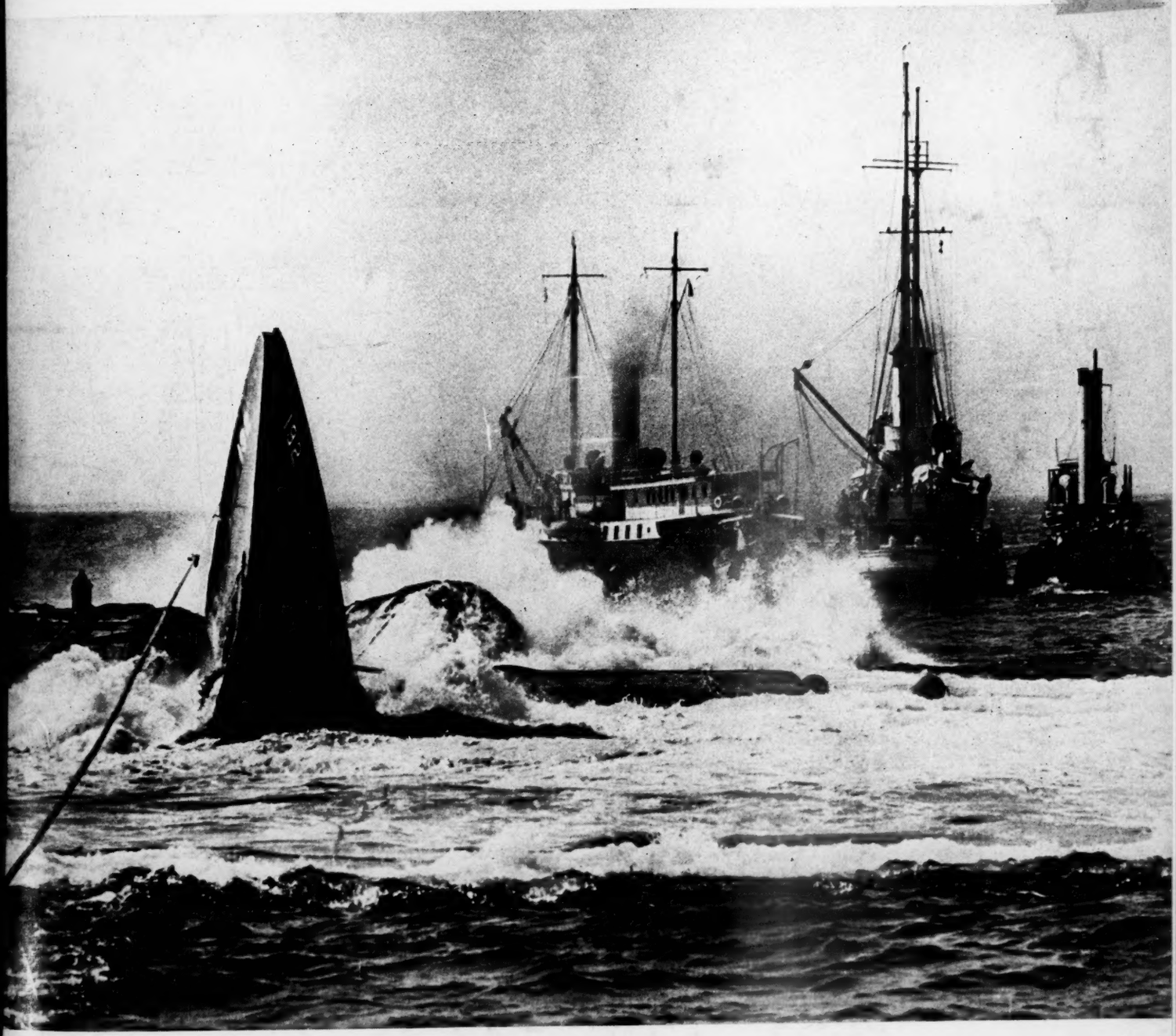

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The National Society of Professional Engineers

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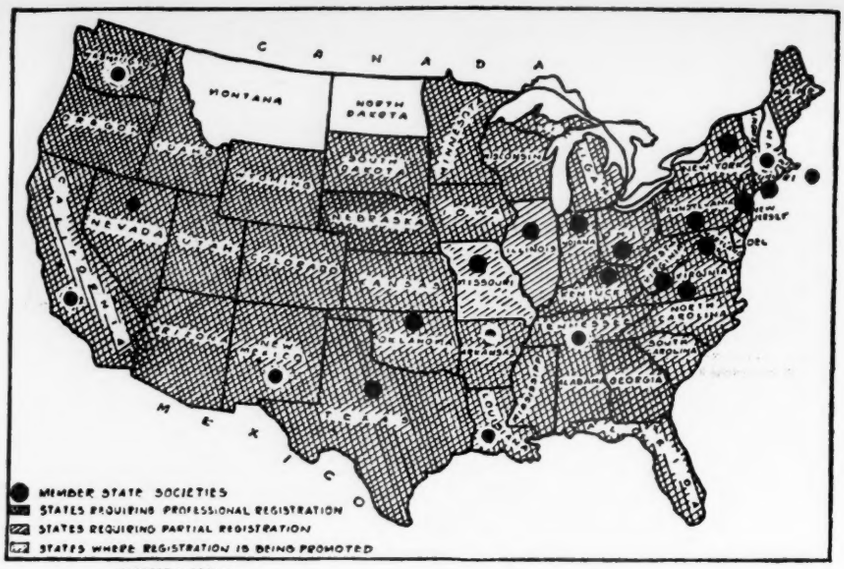
Washington, D. C.



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THE COVER

Photo by Acme Newspictures, Inc.

We were impressed with the pioneer engineering work of the Navy Department in raising the Submarine Squalus at Portsmouth, N. H.

The cover shows the bow of the vessel as it shot into the air for a brief moment during an attempt at the first raising. Since this time a second attempt has been successfully made.

The American Engineer assumes no responsibility for statements or opinions expressed by contributors. Their names identify the source of the same.

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EDITORIAL • • •

WAR!!

Another purge of civilization!

Another slaughter of innocents—millions of them!

Another conflagration consuming the products of centuries of art, science, religion!

Another attempt to prove might over right!

Why? Why—oh Lord, must such be?

Political leaders decree—military chiefs order—regimented manhood marches—armies win victories—nations sign treaties—resentment smoulders—leaders again arise—and the process repeats.

The Engineer's duty here—in a nation presently at peace—is as a citizen to follow the precepts of his Chief Executive, and remain neutral in act and deed. He will do this!

But as a scientist—an engineer—he who "utilizes the materials and forces of nature for the benefit of mankind"—we pray that there were some way, through a universal brotherhood of all members of the profession, that we could boycott forever the design of instruments of destruction!

ROBT. HALL CRAIG

Constitution

of the

National Society of Professional Engineers

PREAMBLE—Recognizing that service to Society, to State, and to Profession is the premise upon which individual opportunity must be builded, the National Society of Professional Engineers does herewith dedicate itself to the promotion and protection of the Profession of engineering as a social and economic influence vital to the affairs of men and of these United States.

NAME—The name of this organization shall be the National Society of Professional Engineers.

OBJECTS—The objects of this Society are to represent the the body of Professional Engineers in the United States with a view to promoting the public interest as affected by the service of the Engineer, and safeguarding and strengthening the professional body for this purpose; to advance the professional and economic interests of the Engineer through legislation, care of public relations, maintenance of the integrity of professional practice, and mutual aid and support; to unite, coordinate and assist the activities of the State Societies of Professional Engineers and their local chapters.

HEADQUARTERS—The main offices of this Society shall be located at Washington, D. C., or such other place as may be designated by the Board of Directors.

MEMBERSHIP—The membership shall be limited to Professional Engineers. Professional Engineers shall be defined (a) in States having registration laws, as Engineers who are legally registered or licensed; (b) in States not yet having registration laws, as Engineers who are legally registered in another State, or certified by the National Council of State Boards of Engineering Examiners, or, by the Board of Directors of a constituent or cooperating organization as having equivalent qualifications. Within two years after the enactment of an Engineers' Registration Law in such states, members who have secured admission through certification by a Board of Directors of a constituent or cooperating organization shall be dropped from membership unless they shall have otherwise qualified as herein set forth.

MEMBER STATE SOCIETIES—Only State Societies constituted primarily or principally of Professional Engineers shall be eligible for affiliation as Member State Societies. Only the Professional Engineer members of a Member State Society shall have a voice in the affairs of the National Society and be included in the number determining the voting power of its representative on the Board of Directors. A minimum of ten Professional Engineers shall be required for the formation and chartering of a Member State Society. One organization in each State, approved by the Board of Directors of the National Society as qualifying under this constitution may become a Member State Society, upon written acceptance of this constitution.

RECIPROCAL RELATIONSHIP—In any State having a Member State Society, every Professional Engineer who is a member of such Member State Society will automatically become a member of the National Society, and no resident can obtain or retain membership in the National Society except through membership in such Member State Society.

OFFICERS—The officers of the National Society shall be a President, four (4) Vice-Presidents, a Treasurer, and a salaried Executive Secretary, who shall each perform the duties usually pertaining to the respective offices.

BOARD OF DIRECTORS—The Board of Directors shall consist of the officers of the National Society, and of one representative from each Member State Society who shall be named annually by the said State Society. Each member of the Board of Directors shall have one vote except that each State Society representative shall have one vote for each 1000 (or fraction thereof) legally registered professional engineer members of the State Society. The Board of Directors shall determine questions of policy and shall meet on call of the President of the National Society.

NOMINATIONS—Nominations for officers shall be made by a committee of five, who shall be appointed by the Board of Directors. Additional nominations may be made by petition of fifty members.

ELECTIONS—Elections of officers (except the Executive Secretary) shall be made annually by plurality vote on individual letter ballots sent to all members of the National Society. The Executive Secretary shall be appointed by the Board of Directors and shall hold office at its pleasure.

COMMITTEES—The Committees of the National Society shall be: Executive, Legislative, Public Relations, Professional Relations, Publication, Membership, and such other committees as may be desirable. All committees shall be appointed by the President and shall perform such duties as may be assigned by him.

CONVENTIONS—A convention shall be held annually at such time and place as may be selected by the Executive Committee.

DUES—The dues for membership in the National Society for each professional engineer Member of a Member State Society shall be four dollars per annum, one dollar of which shall be for subscription to the magazine to be published by the National Society and three dollars of which shall be for the activities of the National Society. These four dollars shall be collected by the County Chapters or State Societies along with the dues of the County Chapter and of the State Society. For members residing in States where Member State Societies have not yet been established, the dues shall be ten dollars per annum paid direct to the National Society, of which sum six dollars shall be set aside in a special "Extension Fund" to be used by the National Society for the purpose of promoting legislation and organizing State Societies in additional States.

STATE AUTONOMY—In all matters of State or local concern, the Member State Societies shall retain full autonomy, but may call upon the National Society for advice, counsel and assistance. The National Society may recommend State legislation and procedure in the interests of uniformity and efficiency, but action upon these recommendations shall be determined by the Member State Society.

COOPERATION—The National Society shall co-operate with all National agencies having allied interests and may give its assistance and support to such agencies. The activities of the National Society shall be restricted to the professional interests of the Engineer, leaving all technical activities to the established technical societies. It shall be the aim of the National Society to promote unification of organizations and to discourage duplication of functions.

RESERVE FUNDS—All divisions of the organization (national, state and local chapter) shall operate with maximum economy, and shall endeavor to build up reserve funds to be used only at critical periods for mutual assistance in carrying out the essential objectives of the organization.

AMENDMENTS—Amendments may be initiated by the Board of Directors or by any member State Society. All amendments to become effective must receive a favorable vote of two-thirds of the votes cast by letter ballot.

NATIONAL SOCIETY NEWS

Brief of Minutes, Board of Directors Meeting

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AUGUST 12, 1939 AT WASHINGTON, D. C.

Those in attendance were President P. T. Ford, Treasurer W. L. Simpson, and the following directors: A. E. Roche, New York; G. F. Randolph, New Jersey; S. I. Sacks, Pennsylvania; V. C. Wagner, D. C.; W. S. Conlon, Executive Secretary N. S. P. E., Maryland.

President Ford advised (1) of the progress of the Convention Committee and the status of the professional movement in the central states; (2) that a Minnesota professional engineers unit had been organized by engineers in that state and had set their dues at $20.00; (3) that Engr. Edward Lawson of Cincinnati, Ohio, had been appointed Chairman of N. S. P. E. Convention Committee.

The Executive Secretary advised that: (1) seven N. S. P. E. News Letters "Here & There" were issued this year; (2) that hereafter the AMERICAN ENGINEER will be distributed without envelopes at considerable saving; (3) that his office secured favorable action in securing adjustment regarding apparent discriminatory action toward engineers; (4) that certain agencies at N. S. P. E.'s suggestion now give recognition to state license laws for professional engineers; (5) that a profit of $469.00 had been made on sales from the Washington office.

The Treasurer reported that all bills were paid.

The next convention will be held at Cincinnati, Ohio, January 25, 26 and 27, 1940.

Election—Engr. S. I. Sacks was appointed chairman of the Nominating Committee to report to the Board at its next meeting, and the following engineers were appointed to the Committee: E. G. Speyer, 487 Ellicott Sq. Buffalo, New York; D. H. Walker, 110 N. Illinois St., Indianapolis, Indiana; L. H. Cleary, 2726 Conn. Ave., Washington, D. C.; F. E. Rightor, Nalle Bldg., Austin, Texas.

Membership—The Board voted that (1) a member six months in arrears in dues shall not receive the American Engineer and shall be considered delinquent thereafter for the following 12 months, at which time if dues are not paid the member shall be dropped. Reinstatement to membership shall require payment of current dues plus one year's dues of arrears.

The next meeting of the Board will be held on October 28, 1939.

—Willard S. Conlon
Executive Secretary

HERE & THERE

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
NATIONAL PRESS BUILDING
WASHINGTON, D. C.

BY W. S. CONLON

Consulting Engineers—

Will they last?

The few that are still in business will not remain very long if some of the unfair competition does not receive attention. N. S. P. E. concerns itself with the problems of all professional engineers whether they be private practitioners or employed engineers. At the moment N. S. P. E. is registering a vigorous protest with certain Federal agencies because of unfair treatment accorded engineers wherein it appears that a plan to raise the salaries of other groups was in part effected at the expense of engineers.

Believing that the focusing of the searching light of reason on these conditions will help materially in accelerating the corrective measures now under way, your reporter quotes from authentic material:

Bargains—

From the Columbus, Ohio, *Dispatch*, July 18, comes: "City may Sign Up Expert to Probe Light Rate Offer" ****"New York Consulting Engineer has offered his services at $35 per day. He estimated that it would require 10 to 14 days to make a thorough probe."

The Ohio Society of Professional Engineers, having adopted a schedule of minimum fees, is checking and the New York Society has been advised.

(Continued on page 23)

NOTICE

THIS IS THE LAST COPY OF THE AMERICAN ENGINEER WHICH YOU WILL RECEIVE, IF YOU DO NOT HOLD A 1939 MEMBERSHIP CARD FROM THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS.

A NEW MODEL ACT

For Regulating the Practice of Engineering

Proposals Sponsored by American Institute of Electrical Engineers at Variance With Best Interests of Public and Profession

Would Make Law Worthless

By ARTHUR V. SHERIDAN

Past President, National Society of Professional Engineers

A pamphlet bearing the date of June 1, 1939 has been recently released by the American Institute of Electrical Engineers. The said pamphlet is entitled "Draft of Model Law for the Registration of Professional Engineers and Surveyors." Aside from certain changes in the matter of exemptions and definitions it is apparently a reprint of a previous report from a committee appointed by the Institute in 1937. The contents merit attention principally because of a statement of principles purporting to underly this draft of a so-called model law.

Some years ago the American Society of Civil Engineers sponsored a conference of representative engineering groups, which included the American Institute of Electrical Engineers, for the purpose of drafting a Professional Engineering Practice Act that might serve as a basis for future legislation. This proposal, which was called a model law, was amended in 1937 and received approval from eight nation-wide agencies including the National Society of Professional Engineers. It was generally understood that this so-called model law was in reality a minimum set of requirements upon which to formulate future legislative proposals. Its sponsors hoped that general acceptance of the policies and requirements set forth would eliminate the incentive for every individual group to confuse the issue by formulating its own model act. The further development and expansion of the accepted pattern was to be expected if, and when, the occasion required. Bearing in mind its own objectives, the National Society of Professional Engineers in 1937 appointed a committee to revamp this draft to such extent as might be deemed proper for the establishment of a desideratum toward which the state professional societies might strive in their efforts to improve existing statutes. It was not contemplated that this should supplant the so-called model act but rather should serve as a criterion toward which the National Society of Professional Engineers might direct its endeavors. In formulating such an ideal, the Professional Society envisioned only amplifications and changes tending to establish higher and more definite standards. The principles and policies set forth in the existing Model Act had, with minor exceptions, been approved by the National Society and were to be adhered to in its own standard. The proposals of the American Institute of Electrical Engineers, however, are entirely at variance with the philosophy of the existing model as well as with the present laws of some forty states. In fact, the premises set forth seemingly ignore the interests of public and profession alike. The method by which an engineer is compensated, rather than the protection of life, health and property, is suggested as a criterion upon which to decide the need for investigating a man's qualifications for practice.

The Institute's Bulletin sets forth a statement of principles upon which the proposed model law is predicated. While most of the sixteen principles listed might well be the subject of reasonable discussion arising from different points of view, two of them are so difficult to defend that one wonders how any organization, or any committee representing a large body of engineers, could possibly enunciate such theories.

Principle No. 4 reads as follows: "To assure these conditions (namely the safeguarding of life, health and property), it is not necessary that all engineers be subject to legislation, but only those who offer services for hire or are public employees." Do not the employees of a corporation, association or firm offer and give their services for hire? Does not the employee who designs or exercises engineering control on the construction of a power plant have human life and public welfare in his keeping? Does not an engineer employed by a railroad design and build for public use? Are not machines and apparatus built and sold by corporations intended for human needs? Is not an automobile built for public operation? Does not a great bridge company serve as well as employ human beings—and are not the lives of such public concern whether the services are rendered on public or private lands, or for public or private corporations? Cannot the same be said in varying degrees of all employees? Are not corporation employees themselves human beings entitled to the same consideration as public employees or persons served by public employees? How can any engineer engage in work without concern for life, health and property? It traduces common sense to suggest that any person sincerely believes a dishonest or incompetent engineering employee in a private corporation could not cause a catastrophe or is not a public menace. In fact the greatest potential dangers are probably from electrical and chemical sources of private or quasi-public nature where a single act, whether due to ignorance or design, might effect unspeakable calamity. Bear in mind that the question of a licensed man as opposed to an unlicensed one is not here under discussion. The statement has been made that the work of corporation employees involves no risk to, or has no affect upon, life, health and property. Society as well as the employee is secure in the hands of the corporation? This is absurd on its face. It is the sponsors and exponents of such ideas that have made possible in America the far swing of a pendulum which at the moment has placed unduly militant unionism in the driving seat to the distinct disadvantage of the engineer and perhaps labor and the public generally.

Turning to a consideration of Principle No. 7 one encounters this statement: "In classification B* the responsibility lies with the organization as a whole. In this class are the engineers (research, design, planning or construction) for example, in the employ of manufacturers, utilities, and educational institutions. Here engineering is the means to an end. The final decisions and responsibility lie with these legally responsible corporations and are exercised by their executives as to the work of all employees, including engineers."

While the opinion set forth as Principle No. 4 might be attributed to a lack of understanding of the purposes for regulating professional practice, it is asking too much to expect any intelligent citizen to be so naive as to accept or subscribe to that which is set forth in No. 7. Even a high school student knows that the implication carried by this statement is utterly false. Do not the proponents of such contention realize that they are disregarding the facts of law and are attempting to usurp for a corporation the prerogatives of government? Since when can a private agency supersede a district attorney or other government official at the scene of an accident whether it is a public or private enterprise that is involved. It is sheer nonsense to suggest that a corporation could pay a penalty in law for, or protect, an individual found guilty of gross negligence, incompetence or diabolical design that resulted in death. Why do not the authors of such thoughts refresh their memories by referring to cases such as the collapse of a building in the City of New York several years ago wherein eighteen persons lost their lives. Was the inspector, the plan examiner or the foreman absolved because he was an employee? They, together with the architect and the builder were convicted of manslaughter. Would the results have been in any respect different if the building in question had been a power plant designed and built by private interests? It is reprehensible for a corporation to profess a responsibility and authority which it does not possess, or, to guarantee against human weakness. Employees who accept the implied information contained in a statement such as that under consideration will be thrown to the wolves, if and when disaster occurs, as a result of failure to realize their own rights and responsibilities before the law rather than because of an employer's unwillingness to aid them.

The inference contained in Item 7 has been disseminated on numerous occasions by persons who, for reasons not understandable to the average engineer, seem to be laboring under the unwarranted impression that regulation of the practice of engineering is contrary to business interests. Despite the fallacy of the contention that the employee of a corporation has no personal responsibility and may do as he pleases provided the corporation approves, the sponsors of this latest proposal ignore the facts and continue to make assertions which are inimical to public and professional welfare. The National Society of Professional Engineers and the several state societies have on numerous occasions challenged these assertions. Must a calamity occur to convince some engineers that regardless of where a person is employed he is, if a normal human being, morally and legally responsible for the results of his acts?

Does anyone believe that public policy will allow corporations to determine responsibility for life, health and property? Does not the state demand conformity with working standards for employees whether public or private? Does it not compel compliance with health and sanitary laws? Does it leave responsibility for proper standards and conditions to corporations for self-determination? Hardly! Neither will it, nor can it, leave the acts of professional employees, the very nature of whose work makes them either agents of construction or destruction, to the control of a corporation rather than to that of the state. A catastrophe in a generating plant, an ammunition works or a laboratory would destroy human life just as effectively as the collapse of a dwelling planned by a private practicing engineer. To contend that it is in the public interest to require the engineer who is retained for a fee to design or build some small highway, sewer, building or other structure to meet high standards through public examination and qualification, while at the same time exempting the engineer engaged in the designing, planning or operation of the structures and machines of great industries whose very existence predicates a public usefulness and service, is to suggest that the proponents of such a proposal have little knowledge of the purpose and function of government and display a complete disregard of common sense, —a most essential engineering attribute.

In passing, one cannot but comment on the statement that engineering is a means to an end when identified with educational institutions. Have not the authors thrown their reasoning into reverse in this instance? Is not the report as a whole a liability rather than an asset to the sponsors? The American Institute of Electrical Engineers should realize that it cannot serve the profession and ignore the public. Its value to the former depends on its service to the latter and to the engineer as a member of society and not as a cog in a corporative wheel.

* (Those practices in which engineering is but one of several elements in the final product of an enterprise).

A Challenge to the Engineering College, The Engineering Dean and the Engineering Professor

By **LINFORD S. STILES**

The fighting words in the title of this open letter addressed to the engineering colleges of the State of New York and their faculties, it is hoped, will evoke more interest than wrath. As chairman of the Publicity Committee of the New York State Society of Professional Engineers, I have surveyed the status of the Society in this, its thirteenth year. Some of the statistics are disappointing. Out of about twelve thousand licensed engineers in this State, only about thirty-two hundred belong to this, the *accredited* society of the profession. Figuratively, the engineer is the end product of the engineering college and likely there exists an umbilical tie between the alumnus and his alma mater. A word from his revered old dean might be sufficient to make him see his duty to belong to the society of his profession.

It was my hope to have the engineering deans as my dinner guests at a series of informal meetings, and over the table discuss informally our Society and what they could do to assist it and why, in my opinion, it was their responsibility to render such help. Personal events that have since transpired closed this possibility immediately. Instead of the companionable conversations and incidentally the pleasure of meeting the personalities in whose care is entrusted the education and nurture of our young men, I must resort to the written word at long range.

In trying to bring to a sharp focus the generalities and impressions I have in mind, perhaps I have taken advantage in spots in the following paragraphs of something akin to "poetic license" and while trying not to hit below the belt have not always pulled my punches. The motion picture producers have a foreword for this. Like them I say in substance that the characters in this story are purely fictional and any resemblance to any person living or dead is purely a coincidence. Seriously, this letter is not personal but purely impersonal, not concrete but rather, abstract.

The Engineer and His Alma Mater

The poet and the orator are born, not made. The engineer is made, not born. Does any responsibility for him remain with the agency under whose tutelage he was educated, after he has been launched out into the world; or is his college morally free to turn its back on him and open its arms to another batch of embryo engineers? Frankly, I think the engineering college has some responsibility for its alumni, and I am quite sure the graduate student will always respond gratefully to advice and counsel from his alma mater.

If the above carries any logical force, it follows it is encumbent on the college faculty to show some solicitude for its erstwhile students. If it can be shown that the licensed professional engineer has the duty to join his professional society, established to promote his interests and the interests of his profession, the burden is on our college faculties to explain why to date they have been indifferent as to whether their graduate students joined the Society, and have with few exceptions kept aloof from this worthy movement, and to the surprise of their engineering brethren in other fields, have been conspicuous by their silence.

In the light of the aims and accomplishments of the Society it is difficult to understand why eight thousand licensed engineers residing in the state should ignore it. Some of them because of the economic crisis we are passing through, lack employment. But we know from our efforts to enroll them that more are in a position to join but neglect to take an interest. It is safe to say the majority of this number have come from our engineering colleges. Where we have failed perhaps the right word from some of those members of the college faculties, under whose guidance and counsel these engineers learned their engineering fundamentals might succeed.

The Nondescript Engineer of Yesterday

The fictional character who was curious to learn what a man about town was, reminds me of the plight of the engineer before the licensing laws became effective. He asked everybody he met to describe the man about town and received different and conflicting answers. He might still be chasing this will of the wisp had it not been, that engrossed in his search he ignored the rules of safety and was knocked down by an automobile. He was taken to the hospital, and the next morning having recovered somewhat from what were only superficial injuries, was surprised upon reading an article in the morning newspaper recounting his accident to find that the reporter described him as a typical man about town.

Those who followed the vague pursuit of engineering were the typical men about town in the professional field

(Continued on page 22)

Linford S. Stiles, is Chairman of the Publicity Committee of the New York State Society of Professional Engineers, Inc.

He has practiced engineering for more than forty years as a consultant, and he has been identified with the utility companies serving the Metropolitan Area since about 1902.

He is one of the engineers who pioneered in the formation of this Society, as well as the Statute which gave engineers a legal status to practice their profession.

He has been a consistent advocate in uniting all engineers as members of one profession, instead of dividing the profession into its branches and specialties.

The Next Step to Raise the Level of Engineering Education

By D. B. STEINMAN
Past President, National Society of Professional Engineers

Now that Engineers' Registration is an established fact, having been enacted by the legislatures and written into the laws of 42 states, I am convinced that **the next important step before our Profession is to raise the level of engineering education.** In doing this, we shall be following the precedents of the other learned professions and we shall be carrying out the policies adopted and recorded by the National Society of Professional Engineers.

In 1905, the medical profession reached the same conclusion and embarked on a program of raising the level of medical education. They considered this so important, to the public and to the profession, that the American Medical Association has expended over one million dollars on the accomplishment of this one objective.

Every medical school in the country now requires two to four years of college work before entering the medical school, and **43 states have written this requirement into the licensing law. Now 77 percent of all medical students are college graduates before they enter medical school.**

The leading law schools require applicants to have **a college degree before enrollment,** and 29 states by law require two years of pre-legal college study.

At the 1938 annual convention of the National Society of Professional Engineers, the following resolution was unanimously adopted:

> "Therefore be it resolved, by the National Society of Professional Engineers in Convention assembled at Pittsburgh, Pa., on October 19, 1938—That the National Society favors and advocates the raising of the standard of engineering education to a higher level by requiring at least two years of pre-engineering college training as a pre-requisite for admission to the engineering schools; and
>
> "Be it further resolved—That the National Society of Professional Engineers shall do what it can to encourage and speed the attainment of this objective, through persuasion, education, and legislation."

To crystallize the situation, I have previously published a statement which I here repeat, because it is fundamental: "There are now three things basically wrong with engineering education. These are: (1) insufficient preparation of entering students for full benefit of an intensive professional education; (2) a too crowded curriculum for four years of study; (3) inclusion of insufficient cultural foundation for the proper equipment of a professional man. All of these three shortcomings can be relieved by a single solution, namely, the encouragement and the ultimate requirement of two years of pre-professional study in a college of liberal arts and science before admission to the engineering schools." This statement of the present shortcomings of engineering education has not been refuted or denied; on the contrary, it has been emphatically endorsed by those who have studied the problem impartially.

I am not here discussing any proposal to **require** two years of pre-engineering college study, but merely a proposal to **encourage** it. This is in line with the resolution adopted by N. S. P. E. How can this desired improvement in professional preparation be encouraged?

At the last session of the New York State Legislature (Februray, 1939), an amendment to the registration law was introduced **to recognize pre-engineering college education by making it permissive for the State Board of Examiners to give fractional credit for such education.** This amendment was misunderstood and misrepresented as proposing a **mandatory** requirement, and this certainly was not the intent. With insufficient time to educate the membership on the subject, the State Society of Professional Engineers voted to defer action and withdrew the measure for further study. With such clarifying improvements in drafting as may be necessary, it is hoped that the amendment will be properly supported when it is next introduced.

I have discussed this proposal informally with a number of leading engineering educators, including Presidents, Deans, and Heads of Departments in engineering schools, and have found that many progressive and forward-looking engineering educators individually are in favor of the idea, although their organizations in the past have been less receptive. Not many years ago, in those circles, the suggestion would have been suppressed as heresy. Now an increasing number of engineering educators are becoming open-minded on the subject.

We cannot expect the engineering schools, as a rule, to welcome this proposal. They are fearful of losing enrollment. If students first take a pre-engineering college course, the half-qualified and the half-hearted may change their minds or may be eliminated before they reach the engineering school. Apparently the engineering schools prefer the present picture of enormous classes in the first year or two, cluttered with students who will never make the grade, with the resulting lowering of standards and retardation of the better qualified.

The engineering schools argue that their curricula now have a sufficient content of liberal courses, claiming that only about 50 percent of their four-year curriculum is engineering. I maintain that, in the present advanced stage of engineering science, a thorough mastery of the **fundamentals** of the basic engineering sciences with an introduction to the problems of professional practice cannot be adequately covered in two years of a four-year course.

In the opposition by engineering schools and their spokesmen, much of their presentation revolves about the use of the word **"culture."** This is a very tricky word and opens many lines of argument pro and con. The point I want to make is that **the present education of engineers is lacking in the humanities,** and that **the average engineering graduate is an illiterate in the fields of economics, philosophy, history, the arts, and the social sciences.** We cannot give more of these to the engineering student and maintain the necessary content of professional education without, in some way, lengthening the period of educational preparation. I believe the engineering schools now recognize that this is bound to come. They, however, are fighting to have any such lengthening take the form of additional years in the engineering schools. I am convinced that this would defeat the purpose, since the additional years would principally promote graduate courses and over-specialization, and the broadening of the educational foundation would be neglected. Moreover, to avoid norrowness of viewpoint and of approach, the student in his formative years should have "a reasonably large access to other types of personality, other domains of knowledge, and other types of thinking than engineering." That is why I am fighting, almost a single-handed fight, to get the tendency in the direction found most desirable and effective by the other professions instead of letting it take its course in the direction desired by the engineering schools motivated principally by considerations of competition and enrollment.

In addition, through force of habit of years of propaganda in competition with non-engineering schools for enrollment of high-school graduates, our educators continue to expound the superiority of an engineering education, its "cultural" value, and its preparation for high positions in industry. I am not here discussing the relative values of liberal college education and engineering education. I submit, however, that **a combination of the two is superior to either alone as a preparation for professional lifework.**

The engineering educators preach that an engineering education is valuable even for those who are not going to be engineers. To this I add that a **liberal college education** is valuable even for those who are going to be engineers. All true education has its values, for which it should be given credit. Ask the engineers who have taken "arts college" work before entering engineering school; without exception, they are unanimous in endorsing this program. Many of them, and many others who have not had the advantage of this superior preparation, are following this procedure for their sons.

I have previously made the statement that a larger proportion than is generally realized of successful engineers and leaders of the engineering profession have gone through such training of their own initiative, with liberal arts college education preceding their engineering training or practice. This statement has been challenged. I therefore submit here two lists which speak for themselves. They were compiled more or less at random from such sources of information as happened to be readily available, and are arranged approximately in chronological order. These lists are naturally far from complete, and for any errors of omission or commission I apologize in advance. The array of names is, I believe, impressive.

OUTSTANDING ENGINEERS WHO HAD PRE-ENGINEERING COLLEGE EDUCATION

Gen. George W. Goethals—(Builder of Panama Canal; Chairman and Chief Engineer, Panama Canal Commission; Major General, U. S. Army; Consulting Engineer; Professor of Military Engineering at U. S. Military Academy; John Fritz Medal, etc.)—Took 3 years of liberal arts at College of City of N. Y. (Class of 1877), followed by 4 years at U. S. Military Academy (Graduated 1880), Later received 9 honorary Doctor's Degrees.

William Barclay Parsons—(Builder of canals, subways, tunnels; Chief Engineer, Rapid Transit Commission; Chief Engineer, Cape Cod Canal; Member, Isthmian Canal Commission; Consulting Engineer, Panama Canal)—Took 4 years of liberal arts at Columbia College (A. B. 1879) followed by 3 years of engineering at Columbia (C. E., 1882).

Gano Dunn—(Eminent Engineer; President, The J. G. White Engineering Corporation; Past President, A. I. E. E.; Past President, United Engineering Societies; President, Cooper Union Institute of Technology; Chairman, National Research Council; Chairman, Engineering Foundation; Edison Medal, 1937; etc.)—Took 4 years of liberal arts at College of City of New York (B. S., 1889), followed by 2 years of engineering at Columbia (E. E., 1891; M. S., 1914)—Later received honorary Doctor's Degrees.

Charles M. Denise—(Vice President, McClintic-Marshall Corporation; General Manager of Sales, Bethlehem Steel Co.; Member Am. Soc. C. E. since 1910.)—Took a full four year general science course at Rutgers College (B. S.), followed by engineering at Lehigh.

L. B. Stilwell—(Consulting Engineer; Chief Engineer, Westinghouse Electric Co. (1891-7); Inventor of regulator for electric circuits, etc.; Phebe Hobson Fowler Professional Award, 1929; Past President, Amer. Inst. of Electrical Engineers; Past President, Amer. Inst. of Consulting Engineers)—Took 2 years of liberal arts at Wesleyan University (1882-4), followed by 1 year of electrical engineering at Lehigh University (Sc. D., 1885).

Otis E. Hovey—(Consulting Engineer; formerly Assistant Chief Engineer, then Consulting Engineer, American Bridge Company; Authority on Movable Bridges; Honorary Member, Am. Soc. C. E.; director, Engineering Foundation)—Took 4 years of liberal arts at Dartmouth (B. S., 1885), followed by 2 years of engineering at Thayer (C. E., 1889)—Later received honorary Doctor's Degrees (D. Eng., 1927; D. Sc., 1933).

Alfred P. Sloan—(Formerly President, now Chairman of Board, General Motors Corporation)—Took a liberal arts course followed by engineering education at M. I. T. (B. Sc., 1895).

Charles Derleth, Jr.—(Professor of Civil Engineering and Dean of College of Engineering, University of California; Chief Engineer, Carquinez Strait Bridge; Consulting Engineer on the Oakland-Alameda Estuary Tunnel, the San Francisco-Oakland Bay Bridge, the Golden Gate Bridge, etc.)—Took 5 years of liberal arts at College of City of N. Y. (B. S., 1894), followed by 2 years of engineering at Columbia (C. E. 1896)—Later received honorary Doctor's Degree (L. L. D., 1930).

Robert Spurr Weston—(Consulting Sanitary Engineer; Author of "Water Work Handbook"; Past Chairman, Sanitary Engineering Division, Am. Soc. C. E.; Past Vice President, Amer. Inst. of Consulting Engineers)—Took liberal arts courses at Amherst (B. S. and A. M.), followed by graduate study at M. I. T.

S. E. Whitaker—(Consulting Engineer; Industrial Management; Electric Railways)—Took 4 years of liberal arts at Boston University (A. B., 1890; A. M., 1893), followed by 3 years of engineering at M. I. T. (S. B., 1893)

Wilbur J Watson—(Consulting Engineer; Eminent Bridge Engineer; Designer of the Goodyear Zeppelin Dock at Akron; Author and Authority on Bridge Architecture; Charter Member of the Cleveland Society of Professional Engineers)—Took the liberal arts course at Baldwin-Wallace College, followed by engineering at Case School of Applied Science (B. S., 1898)—Later received honorary Doctor of Engineering (1930).

C. C. Williams—(President, Lehigh University; Past President, Society for Promotion of Engineering Education; Originally engaged in Railway, Bridge, Municipal and Highway Engineering)—Took a liberal arts course in Southern Iowa Normal School (B. S., 1900), followed by engineering at University of Illinois (B. S., in C. E., 1907) and University of Colorado (C. E., 1909)—Later received three honorary Doctor's degrees.

Hardy Cross—(Professor of Civil Engineering at Yale University; Engineer; Author; Outstanding Contributions to Structural Engineering; Norman Medal, A S. C. E., Wason Medal, A. C. I.)—Took 4 years of liberal arts at Hampden-Sidney College (B. A., 1902—Valedictorian; B. S., 1903), followed by engineering at M. I. T. (B. S. in C. E., 1908).

Col. F. W. Scheidenheim—(Consulting Hydraulic Engineer; Invented Anchoring Wall for dams; Fuertes Gold Medal; Thomas Fitch Rowland Prize; Commanded 26th Engineers in World War; Distinguished Service Medal awarded by President of U. S.)—Took 4 years of liberal arts at Cornell (A. B., 1905) followed by one year of engineering (C. E., 1906).

E. A. Mees—(Hydro-Electric Engineer; Asst. Chief Engineer, Federal Power Commission)—Took the liberal arts course at Woodville (Ohio) Normal Academy (B. Ped., 1901), followed by engineering at Rose Polytechnic Institute (B. S. in C. E., 1911).

Harry Baum—(Consulting Mechanical and Electrical Engineer; Professor of Electrical Engineering at College of City of N. Y.)—Took 5 years of liberal arts at College of City of N. Y. (B. S., 1902), followed by engineering at Columbia (E. E., 1908).

Ralph J. Reed—(Consulting Engineer—Los Angeles Harbor development—Los Angeles traffic; Chief Engineer, Union Oil Co.; President, California Board of Registration for Civil Engineers; Director, Am. Soc. C. E.; President, National Council of State Boards of Engineering Examiners)—Took 4 years course at Pomona College (B. L., 1905), followed by 3 years of engineering at University of Michigan (B. S. in C. E., 1908).

Jonathan Jones—(Authority on Structural Engineering; Chief Engineer, Detroit Ambassador Bridge; Chief Engineer, Bethlehem Steel Company)—Took 4 years of liberal arts at University of Pennsylvania (A. B., 1903), followed by 3 years of engineering at U. of Pa., (B. S. in C. E., 1905; M. S. in C. E., 1906).

George W. Burpee—(Consulting Engineer; Partner, Coverdale & Colpitts; Past President, American Inst. of Consulting Engineers; President, Metropolitan Section Am. Soc. C. E.)—Took 4 years of liberal arts at Bowdoin College (A. B., 1904), followed by 2 years of engineering at M. I. T. (B. S., 1906).

Edward J. Mehren—(President, Portland Cement Association; Former Editor, Engineering News-Record)—Took 4 years of liberal arts at St. Ignatius College (A. B.), followed by engineering at University of Illinois (B. S. in C. E., Tau Beta Pi, Sigma XI).

Allston Dana—(Engineer of Design, Port of New York Authority—On design of George Washington Bridge, Kill Van Kull Arch, Triborough Bridge, Bronx-Whitestone Bridge, etc.)—Took 4 years of liberal arts at Harvard (A. B., 1906), followed by 2 years of engineering at M. I. T. (S. B., 1908).

Hale Sutherland—(Engineering and Educator; Professor and Head of Department of Civil Engineering at Lehigh University)—Took 4 years of liberal arts at Harvard (A. B., 1906), followed by engineering at M. I. T. (S. B., 1911).

Senator Thomas C. Desmond—(Retired Engineer; President, T. C. Desmond & Co., Engineers and Contractors; N. Y. State Senator; Director, N. Y. State Society of Professional Engineers; Member, Am. Soc. C. E.)—Took 4 years of liberal arts at Harvard (A. B., magna cum laude, 1908), followed by 1 year of engineering at M. I. T. (S. B. in C. E., 1909), Later received honorary degree of Doctor of Humane Letters from Union College (L. H. D., 1939).

Harold A. Thomas—(Professor of Civil Engineering at Carnegie Institute of Technology; Authority on Hydraulics and Concrete) —Took 4 years of liberal arts at Columbia College (A. B., 1906), followed by 2 years of engineering at Columbia (C. E., 1908).

Harold M. Lewis—(Consulting Engineer; Engineer and Planning Consultant, Regional Plan Association; Director Am. Soc. C. E.)—Took 4 years of liberal arts at Williams College (B. A., 1909), followed by 3 years of engineering at Rensselaer (C. E. 1912).

Charles Mayer—(Consulting Engineer; Authority on Structural Design; Designer of Lewisohn Stadium at New York City)—Took 4 years of liberal arts at Columbia College (A. B., 1907), followed by 2 years of engineering at Columbia (E. E., 1909; A. M., 1909).

Thorndike Saville—(Consulting Engineer; Authority on Hydraulic and Sanitary Engineering; Dean of College of Engineering at New York University)—Took 4 years of liberal arts at Harvard (A. B., 1914) and Dartmouth (B. S., 1914), followed by 1 year of engineering at Thayer (C. E., 1915) and 2 years of graduate study at Harvard (M. S., 1917) and M. I. T. (M. S., 1917)

Gavin Hadden—Consulting Engineer; Authority on Airports, Stadia, etc; Past Vice President, American Institute of Consulting Engineers)—Took 3 years of liberal arts at Harvard (A. B., 1910), followed by 3 years of engineering at Columbia (C. E. 1912).

OUTSTANDING ENGINEERS WHO HAD LIBERAL ARTS EDUCATION AND NO FORMAL ENGINEERING EDUCATION

John Stevens—(Pioneer American Mechanical Engineer, Inventor, and Railway and Transportation Expert. Steamboats, Screw Propellers, Canals, Railroads, Ironclads. His family name is perpetuated in the Stevens Institute of Technology)—Had liberal college education at King's College (now Columbia University) with degree A. B. (1768)—No formal engineering education. (No engineering schools available.)

James Rentwick—(Eminent Engineer, Scientist, Educator. Expert adviser on most of the engineering problems of his time. Topographical Engineer; Consultant on Canals, Railroads, Steam Engines, Boundaries. Inventor of the Canal Lift. Author of "Treatise on the Steam Engine." Had liberal college education at Columbia College (A. B., 1807; A. M., 1810; L. L. D., 1829). No formal engineering education. (No engineering schools available.)

Horatio Allen—(Pioneer American Canal, Railroad, and Mechanical Engineer. Imported and operated the first steam locomotive in America, 1829. Consulting Engineer. Proprietor of the celebrated Novelty Machine Works, building marine engines. Honorary Member, Am. Soc. C. E. Past President, Am. Soc. C. E.)—Had liberal college education at Columbia College (A. B. 1823)—No formal engineering education. (No engineering schools available.)

Alfred W. Craven—(Railroad Engineer. Chief Engineer of the Croton Aqueduct Commission. Past President, Am. Soc. C. E. First American Member of the Institute of Civil Engineers of Great Britain)—Had liberal college education at Yale and Columbia College (A. B., 1829). Then studied Law and was admitted to the Bar. No formal engineering education. (No engineering schools available.)

William Gillespie—(Engineer—Educator—Head of Civil Engineering Department at Union College—Author of famous treatise on Surveying, which was the standard text for over half a century)—Had liberal arts education at Columbia College (A. B., 1835)—No formal engineering education.

George S. Morrison—(Eminent Engineer—Famous builder of bridges Past President, Am. Soc. C. E.)—Took complete liberal arts course at Harvard, followed by graduation from Law School; never attended any engineering school; subsequently acquired Engineering by self-study.

Holton D. Robinson—(Consulting Engineer—International Authority on Bridge Design and Construction—Over 50 years practice in Bridge Engineering—Invented many improvements in the art)—Took 4 years of liberal arts at St. Lawrence University (B. S., 1886); subsequently acquired Engineering by self-study and in the school of practical experience. Honorary Degree of Doctor of Science (1926) from St. Lawrence University for his character and achievements.

W. S. Kinnear—(Consulting Engineer—Railroad Builder—Built Detroit River Tunnel—Norman Medal—Past President Amer. Institute of Consulting Engineers)—Took liberal arts course at Kansas University (A. B., 1884)—No formal engineering education—Honorary degree C. E., 1907.

Edwin F. Wendt—(Consulting Engineer—Railroad Builder—Member of Engineering Board, Interstate Commerce Commission—Past President, Amer. Railway Engineering Association—Past President, Amer. Institute of Consulting Engineers)—Took liberal arts course at Geneva College (A. B., 1888)—No formal engineering education—Honorary degree D. Sc., 1913.

W. H. Coverdale—(Eminent Consulting Engineer; Railroads, Utilities; Partner, Coverdale and Colpitts, Consulting Engineers)—Took liberal arts at Geneva College (B. A., 1891; Dr. Sc. 1914)—Honorary Degree from Queens University (L. L. D., 1922)—Never attended an engineering school.

Jerome Alexander—(Eminent Consultant Chemical Engineer)—Took 5 years of liberal arts at College of City of New York (B. S., 1896—Phi Beta Kappa; M. Sc., 1899)—Never attended an engineering school.

Charles A. Ellis—(Bridge Engineer—Designing Engineer Golden Gate Bridge—Professor of Bridge and Structural Engineering at University of Illinois—Now professor of Structural Engineering at Purdue University)—Took liberal arts course at Wesleyan University (A. B., 1900)—No formal engineering education—Later received degree C. E. from University of Illinois, 1922.

Harry A. Hopf—(Consulting Engineer—International Authority of Management Engineering—Founder of the Hopf Institute of Management—Author—Lecturer—Has 3 college degrees in liberal arts and sciences (New York University, B. C. S., 1906; M. C. S. 1914; M. B. A., 1922), but never attended an engineering school.

In running through the names in both of the foregoing lists, the outstanding impression is leadership. Where pioneering, resourcefulness, invention, human relations, administrative ability, management, vision, and professional leadership are involved, a broad educational foundation appears to be a splendid preparation for an engineering career. If the engineering profession is to be a profession in the highest sense of the word,—**a profession of planners and leaders and not of mere technicians,**—the answer is indicated. **We need education, and not mere technical training;** and, generally speaking, **education should precede training.**

My picture of professional preparation is that of the pyramid: First, as a broad base, the education that all educated men should have; then the basic courses that all engineers should have; and, finally, the more specialized training for the major branch of engineering selected.

The logic is that of progressive preparation and specialization, with advancing intellectual maturity for decisions affecting choice of life-work and for the more intensive preparation therefor.

The only remaining argument of the opposition is that of the hardship on the poor student who cannot afford to add two years to his educational preparation for an engineering career. This argument is a confusion of issues. We are discussing a proposal **to encourage** pre-engineering college study, **not to make it mandatory.** We want to encourage and stimulate this improved preparation for those who can afford it, and for those who have the aptitude, ambition and guts to secure it for themselves despite poverty. We want to make the goal—**the engineering profession of the future**—a sufficient incentive and reward to justify this additional investment and sacrifice!

How can we encourage more young men to take this improved educational preparation? The only solution I can offer is **to recognize pre-engineering college education by making it permissive for the State Board of Examiners to give fractional credit for such education.** For those who have invested such additional two years in desired educational preparation, it is proposed to offer a partially compensating inducement in the form of two years reduction in the final apprenticeship requirement before admission to licensing examinations. In New York State, in effect, out of a 12-year experience requirement for non-graduates, we now give 8 years of experience credit for 4 years of study in an engineering school, and it is permissive for the State Board to give additional year for year credit for graduate study. Why then is it inconsistent to give two years of credit for two or more years of pre-engineering college study, if the latter is desirable professional preparation? In justification of such reduction of the interneship requirement, I submit that the more mature and better equipped students entering the engineering schools will be more intensively benefited during their period of engineering study, and will in the same measure be better prepared for profiting more intensively from the subsequent apprenticeship period. Some men, as is well known, can learn more from two years of practical experience on the job than other men can learn in four years of such experience.

That I am not alone in advocating the desirability of pre-engineering college education is evidenced by the following excerpts from the opinions recorded by leading engineers and educators on the subject:

OPINIONS OF ENGINEERS AND EDUCATORS ON THE DESIRABILITY OF PRE-ENGINEERING COLLEGE EDUCATION

Senator Thomas C. Desmond (Director N. Y. State Society of Professional Engineers)—"You can quote me at any time as heartily approving of the belief that **two or more years of pre-engineering collegiate training will be of great benefit to prospective engineers, as improved preparation for their professional lifework.**" (1939)

Dr. Gano Dunn (President, J. G. White Engineering Corporation; President, Cooper Union; Past President, A. I. E. E.; Past President, United Engineering Societies)—"**I have always been a strong advocate of a fundamental liberal arts education as a prerequisite for an engineering course.** I am not sure that this is so important for pure scientists and research workers, but I believe **it is almost essential if an engineer expects to become an important factor in his profession.**" (1939)

"If an engineer's training neglects the great human mirrors of history and languages, particularly his own language; if his mind and heart are not sensible to the great forces of his day and of his community,—**his career as an engineer is limited, no matter how much science he may know.** For these reasons, as the engineering profession has developed, the center of education for engineers has been shifting toward the humanities. This is one reason for the greater part engineers constantly are playing today in the great roles of life. **The humanities are of profound and increasingly recognized importance in the arch of an engineer's education,** though its keystone always will be science." (Address at M. I. T., June 1938.)

Jonathan Jones (Chief Engineer, Bethlehem Steel Company)—"Our Mr. C. M. Denise (General Manager of Sales, Bethlehem Steel Company) took a full general science course at Rutgers preceding his engineering at Lehigh, and also we have some younger men who have done the same thing; and it is a rather striking fact that I discovered this in the case of two men some time after **they had impressed themselves upon all of us as being outstanding and capable of leadership.**—During the (pre-engineering) collegiate training, a boy's outlook on future possibilities is broadening and his decision to become this, that or the other in future is going to be based upon more definite reasoning and, therefore, **is apt to be more successful.** There is also the fact that the average graduate of high school or preparatory school has not developed a very logical and vigorous way of thinking. If he will in his collegiate training take enough subjects such as logic and mathematics, he will, by the time he gets to engineering, **have a mind better fitted to accept and reject rather than to memorize.** Finally, with these additional years of training back of him, **he will enter into industry with more confidence in himself, and more poise,** and will make himself more immediately useful and therefore **will enhance his opportunities for advancement.—I believe that in future those who are going to really lead in engineering will be those who have had this broader training, and that those who take only a four year engineering course will be under a handicap.**" (1939)

Professor J. K. Finch (Head of Civil Engineering Department, Columbia University)—"**I am strongly in favor of the idea of two pre-professional years of a liberal arts-science-engineering course as prerequisite to all professional training.—The principles basic to this plan are sound.**—The Thayer School at Dartmouth, which has been operating on a similar plan for a half century, and Columbia, as well as two or three other schools which have more recently adopted pre-engineering training, are **thoroughly convinced of its educational soundness and values,** and are devoting their funds and efforts to carrying it out.—**In my opinion, the most promising plan to meet all our engineering educational problems is to be found in the development of the pre-engineering idea. I think your Society can do a constructive piece of work in developing and furthering this plan.**" (1939)

"As to pre-engineering training: Something over half our students take two years and the balance three. The two-year program is essentially a liberal-engineering-science course.—A mixture of history, economics, English, mathematics, physics, drafting, etc.—If I did not think this Columbia plan a sound one and did not know that it was **producing** better educational results than the old program, I would do my best to get it changed,—instead of rooting for it. In short, **I am confident that the two-year pre-engineering plan is sound, that it is a plan toward which our better engineering schools are slowly moving and that it will strengthen the general standing and broaden the outlook of our profession.** I am however convinced, that, while the **Registration Law should encourage it,** the time has not yet arrived to make this plan obligatory." (1939)

"To my mind, the most impressive argument is that furnished by the men who have taken 'arts college' work before entering engineering. They, at least, know what they are talking about, and I have yet to find a single engineer who had some arts work in college and regrets it. I have talked to many and—**they are unanimous in stating that it was well worth the time and expense.**" (1939)

Charles Mayer (Consulting Engineer; Designer of the Lewisohn Stadium, New York City)—"I must agree with you that **two or more years of pre-engineering collegiate training is most desirable in preparing a man for practice in the engineering profession.** It is required in law, medicine and architecture, and I can see no logical reason why its need should be so controversial a question for engineers." (1939)

Prof. Hale Sutherland (Head of Civil Engineering Department, Lehigh University)—"**You are on sound ground in urging that engineering education be advanced to the graduate level.** I hope the National Society of Professional Engineers keeps this a live issue, and as a member and director of the Lehigh Valley Section of the Pennsylvania Society of Professional Engineers, I will join in local campaigning." (1938)

Dr. W. E. Wickenden (President, Case School of Applied Science; Past President, Society for Promotion of Engineering Education) —(In S.P.E.E. Report of the Investigation of Engineering Education:)—"If the junior college relieves the engineering colleges of any considerable part of **their present burden of sifting and eliminating,** if it provides for many a reasonably effective program of terminal training, and if it sends on to the professional schools a well-winnowed and well-prepared group of prospects, **the gains may be notable.**" (1926)

"While preliminary study in an arts college seems fairly certain to be voluntary for prospective engineering students, **it may well be encouraged more widely for the sake of its personal and cultural values.**" (1926)

"**Licensure** will undoubtedly do much to give the engineering profession a more salient character and **may potentially raise its educational standards.** The definitions and regulations so far enacted, however, accept the **status quo** and have not been a great aid in projecting educational aims and methods into the future." (1933)

Arthur V. Sheridan (Commissioner of City Planning, New York City; Past President, National Society of Professional Engineers) —"Surely there can be little question of the **necessity for a thorough general academic training for any professional man.** This should be **followed by a general professional course** which would train him to qualify for entrance to the general practice of his calling.—**The Engineer must be articulate and capable of contending on an equal basis with the representatives of business and the other professions in helping to direct community progress and the affairs of government. Two years spent in an intensive study of general mathematics, history, literature, philosophy and at least one foreign language is none too much for the average man to prepare himself for professional matriculation.** With such foundation, three years of general study should, when amplified by an apprenticeship of three to four years, prepare one sufficiently to seek, through examination, admission to the profession." (Editorial in **American Engineer,** 1936)

Prof. Daniel S. Elliott (Professor of Physics, Tulane University)—"**Unless one is merely trying to train technologists, to deprive the engineering student of a reasonably large access to other types of personality, other domains of knowledge, and other types of thinking than engineering,** is to lead him to unconsciously conclude that the engineering domain is exclusively the only desirable one. Prejudices of this sort which insulate a student against new ideas outside of engineering would be extremely dangerous to him." (1938)

An Engineering Graduate of the Class of 1928, Cornell:—"Aside from the technical phase of an engineer's education, let me add one more wail to the old theme that we didn't get enough so-called Classical education. **You should place any one in jail who graduates with an M.E. degree and doesn't know any more about economics, philosophy, history, languages, etc., than I did when I got out.**" (1938)

Dr. George F. Zook (President of the American Council on Education)—"Engineers must realize that they live as members of society, not simply as professional technicians. **They need more cultural studies.** Medicine and law recognize this by requiring **two years of pre-professional collegiate training.**" (1938)

Gavin Hadden (Consulting Engineer; Past Vice President, American Institute of Consulting Engineers)—"Please let me assure you that I am completely on your side of the question. * * * I am one of those who have always believed that it is worth while for a prospective engineer to take a college course before taking his technical engineering course, if he can possibly afford to do so. * * * For the average run-of-the-mill young man **I am convinced that he has a better chance of becoming a good engineer, and one who will be a credit to the profession, if he takes a college course first.**" (1939)

Sumner B. Ely (Professor of Commercial Engineering, Carnegie Institute of Technology; formerly Chief Engineer, American Sheet and Tin Plate Company)—"Men who study in one field only become highly specialized and narrow. * * * They lack breadth of knowledge and do not appreciate the bearing or influence of other fields on their own. Furthermore, such subjects as

literature, history and the like round out the student and help greatly in **developing his character,** show him how to get more out of life, **and interest him in human affairs** and make him a better citizen generally. * * * **Breadth of knowledge is necessary in the engineer, as well as technical information.** * * * The idea held by many people, particularly young engineers, **that cultural or liberalizing studies** have no practical value, is entirely wrong. On the contrary, they have a **very great practical value and help directly in making a living."** (Scientific Monthly, 1939)

John J. Caton (Founder and Director of the Chrysler Institute of Engineering; For 23 years in four Universities as Professor of Mechanical Engineering, and for 21 additional years in professional work as practicing engineer.)—"I am already in agreement with all you have to say * * * I feel that **before long a pre-engineering education will be required before one can acquire sufficient credit for registration in an accredited college of engineering.** The other professions such as law and medicine are just about a jump ahead of us in this respect. * * * It serves two purposes. It gives the candidate four years after leaving high school to get his feet upon the ground, to push his border lines back, and **to make a decision that is vital to him at a time when his mind is more mature,** even more plastic to the touch. During this four-year cultural training, he has acquired **poise, carriage, approach, and attack** which are **very conspicuous by their absence in the engineers. There is no profession that has more misfits than the engineering profession.** 82% fall by the wayside within the first five years. The average engineer in too many instances cannot write a correct business letter; and as for listening to him give a talk, it too frequently is pathetic. * * * **To be an engineer, the European continent requires first a complete cultural education.** * * * Over there, they look up at an engineer and not down upon him as is frequently the case in America. In England, he must acquire two years of shop **after acquiring his Bachelor of Arts degree before being permitted to enter the college of engineering.** Now in the college of engineering they impose **four more years of actual engineering subjects.** Upon completion of this, **they graduate him as an engineer, not as an electrical, chemical, civil, or mechanical engineer.** However, **they have in those countries another type of school called the polytechnic** which has a four year course and teaches about the same subjects as we do in our American colleges of engineering,—**the difference being that they graduate him not as an engineer but as a technician,** which title he religiously adheres to during the natural term of his life. We in America have a four-year engineering course of which **only two years are devoted to engineering subjects.** The first two years we are invariably cleaning up the dirt that should have been cleaned up before they permitted us to enter the college of engineering. Then they graduate us as so-called specialists in civil, mechanical, chemical electrical engineering, etc. * * * The engineer has given to society practically everything it enjoys but, on the other hand, this same society does not care to have us participate in its political, economic, or social activities, and the reason seems to be that we are not prepared. We have not the cultural background of the other professions, and we have no one to blame but ourselves. Out of 1056 accredited colleges in the United States and Canada, including 204 engineering colleges, we are told there are but two or three that have an engineer for a president. We have not the cultural background to sit there, hence they do not permit us to sit. * * * **If an engineer had no ambition other than to become a good technician, then I would say his education is adequate."** (1939)

Prof. Hardy Cross (Professor of Civil Engineering at Yale University; Outstanding contributor to structural engineering)—"I think I am committed to the thesis that **there is no substitute for a good general education in any walk of life.** * * * Some years ago I remarked that I believed I had probably **learned as much engineering out of a Latin grammar as I had out of an engineering text.** * * * Some engineers were very much puzzled by that remark. I think you will understand what I meant in saying that I there learned accurate definition and accurate classification. However this theory is tough meat for young students." (1939)

George W. Burpee (Partner, Coverdale & Colpitts, Consulting Engineers; Past President, American Institute of Consulting Engineers; President, Metropolitan Section Am. Soc. C. E.)—"The purpose of education is to fit a man to be at home in the world. The traditional college is dedicated to this purpose and, in my opinion, in its non-commercial atmosphere, **performs this function more effectively than the professional school** which, be it law, medicine, or engineering, is necessarily concerned chiefly with providing the student with tools whereby to earn his living. An engineer today is a very important member of society, and it is most important that he acquire a philosophy; **and, because I believe that such a philosophy is more readily to be obtained by education in the humanities. I am heartily in favor of such education in advance of professional training."** (1939)

President Philip C. Nash (University of Toledo)—"No other profession, such as law, medicine, teaching, or the ministry, dreams of **giving so narrow a preparation for life.** Are we justified in giving it to engineers?" (1938)

E. J. Mehren (President, Portland Cement Association; Former Editor, **Engineering News-Record**—"I believe that most men who have the capacity for creative work in engineering would be broadened by a fundamental college education. * * * Such a preliminary education should enable a student to get the most out of an engineering course and, through the development of the imagination, push him into truly creative work, into steps that others do not so much fear to take as never think of taking. Looking to one's social responsibility, **such preparation is more necessary today than ever before in the engineering age,** for our calling, through its creation of today's wealth-producing machine, has thrown us awry socially and has encouraged through its achievements an easy acceptance of a purely material conception of the purpose of life and of the standards of every-day living." (1939)

Allston Dana (Engineer of Design, Port of New York Authority—On design of George Washington Bridge, Kill Van Kull Arch, Triborough Bridge, Bronx-Whitestone Bridge, etc.)—"With regard to the general question of the value to an engineer of a so-called liberal arts course in a college in addition to his technical course in an engineering school, I feel that, if he can afford the additional time before starting his professional work, it is preferable to put this time into general college work rather than into post-graduate engineering studies. * * * **He comes to his engineering studies with a more mature mind and his technical training is, for that reason, more thorough."** (1939)

Carlton S. Proctor (Consulting Engineer; Director Am. Soc. C. E.)—"Is it not time we should agree that a professional man cannot be produced in four years, but that an accredited civil engineering training must be definitely postgraduate, **with a broad undergraduate training as a prerequisite?** * * * **Only by making our profession worthy of 'status' can we attain our aims."** (1939)

"I do hope that all professional agencies will **pull together for the accomplishment of this objective in the improvement of engineering education,** which is obviously **an essential immediate step to the preservation of the profession."** (1939)

Conclusion

Because I am convinced of the imperative logic of this proposition, I have consecrated my personal efforts to this objective as the next major step for the advancement of the engineering profession. For years, in my writings and addresses, I have endeavored to lay the groundwork. Much more educational work needs to be done. Will you help?

I have nothing personally to gain by this campaign. It involves personal sacrifice, and is rewarded by misunderstanding, loss of friends, and personal attack. Nevertheless I am continuing to wage my campaign because someone is needed to do this for the engineering profession. Will you help?

I am concentrating on this one objective and wish to avoid confusion of issues. Some compromises will probably be necessary in order to reduce opposition. I believe however that my proposition is fundamentally sound. If you do not agree with my logic and reasoning, please write me frankly. If you endorse my reasoning and conclusions, please let me know. Will you help?

I am hoping to see this legislation advanced in the 1940 session of the New York State Legislature. We need the recorded support of the engineering profession. Will you help?

●

START NOW

TO PLAN TO ATTEND

THE ANNUAL CONVENTION

of the

National Society of Professional Engineers

in

Cincinnati, Ohio

January 25, 26 and 27, 1940

●

Brief of 12th Annual Meeting

New York State Society of Professional Engineers

OFFICERS AND DIRECTORS ELECTED

President Frederick H. Zurmuhlen
1st Vice President Andrew K. Johnson
2nd Vice President Hubert E. Snyder
Fin. Secretary Ernest F. Fox (Re-elected)
Treasurer P. M. Corry (Re-elected)

Directors at Large
Zone 7 E. A. Dollard
Zone 8 E. E. Stickney (Re-elected)
Zone 9 Paul H. Reid

Frederick H. Zurmuhlen of the Borough of Richmond in New York City was elected President of the New York State Society of Professional Engineers at its twelfth annual meeting at the Hotel Commodore in May. The meeting was attended by upwards of 650 engineers, and many men identified with the engineering educational institutions of the state.

The problem of pre-cultural education as a requirement for study in an engineering school has aroused the professional practitioner to action in soliciting from the dean of engineering of each school a greater interest in the profession and those who will follow in it in succeeding generations.

The Executive Board meeting was attended by David B. Steinman, James M. Welsch, Arthur V. Sheridan, John C. Riedel, Trustees; Alfred E. Roche, Frederick H. Zurmuhlen, Andrew K. Johnson, Ernest F. Fox, P. M. Corry, Officers; Charles W. Burke, Thomas C. Desmond, Ignatius W. Conway, Elmer C. Lawton, Edward E. Stickney, Albert W. Spencer, Charles W. Marvin, Directors; Louis C. Hyatt, Albany; Wm. L. Arctander, Bronx; Clifford C. Cheney, Salamanca; James F. Fairman, New York; Ferris R. Quackenbush, Florida, N. Y.; George H. Bruns, Jamaica; Carl H. Robbins, Troy; Joseph J. Welsh, Staten Island; William B. Chadsey, Schenectady; Lacy Ketchum, Owego; S. C. Sullivan, Glen Falls; Joseph A. Brady, White Plains; Elwin G. Speyer, Buffalo. County Chapter presidents, received the reports of the Auditors, Legislative Committee, Practice Violations, Membership, Patent, Ethics and Publicity Committees.

The luncheon meeting was addressed by N. Max Dunning, former President of the American Architectural Congress and Vice President of the American Institute of Architects. Mr. Dunning, now Assistant Chief of the Procurement Division, Treasury Department, is an architect of many years' experience in the Chicago area. (Mr. Dunning's address was printed in the June-July issue of the American Engineer.)

Matthew A Hunter, Dean of Engineering at the Rensselaer Polytechnic Institute said:

"Past discussions by the Society have centered around two problems. The first of which is an overcrowding of engineering graduates in the professional fields and the second is the lack of status or ability of engineers to assume leadership in professional fields.

"The Educator has been accused of washing his hands of all responsibilities in both of these matters, of leaving the young engineer to care for himself in the free play of competition into which he entered on graduation.

"If these are the policies of any engineering educator, such policies contain the seeds of his own destruction."

Dean Hunter continued and analyzed the number of students to complete their engineering studies in June 1939.

Mechanical Engineers	3,300
Electrical Engineers	2,300
Chemical Engineers	2,200
Civil Engineers	1,800

Dean Hunter inquired: "Are the educational institutions throughout the country graduating more men than industry in this country of 130,000,000 people can absorb?"

"What figure would the practitioner set for yearly graduating enrollment as the proper implementation of industry with human brains?"

"How many less engineers than that number above referred to should the institutions graduate each year?"

Dean Hunter pointed out that there is a decrease in the enrollment in the engineering colleges of the country of about 7 per cent and referred to the "Atlantic Monthly" of February 1939, in which the United States Office of Education believes the peak of high school enrollment has been reached; thus, automatically reducing enrollment in all professions.

Dean Hunter pointed out the status of the engineer by quoting from Dr. Compton that of the 235 college trained presidents in leading American industries, 151 were trained in engineering schools and 84 in colleges of other types. Of the 54,000 officers of all types in finance, production, engineering and sales, we find a strong predominance of engineering trained men.

Dean Hunter stated that there is gradually being eliminated the weaker institutions for engineering education by a process within the educational field, supported by all branches of the profession.

We should be careful, however, to see that there is no elimination of a student on the basis of brains and continuation of a student on the basis of a bank account.

Charles W. Burke, Chairman of the Committee on Arrangements presented President Roche in an unusual manner, stating "This is the first time the Society has been presided over by a banker-engineer. President Roche, as you know, is Vice-President of the Troy Trust Company and Chairman of the Board of Directors of the Rensselaer Building and Loan Association."

President Roche stated:

"One of the barnacles on business is stuffed assets, concealing true worth. The investment banker and the accountant know nothing of brick and mortar, machines, works, processes, plants and their obsolescence, yet they are inducing public investment.

"In the average financial statement, 'plant' represents 40% of the corporation's assets. That statement is not supported by facts. The condition of the plant, its equipment and true value is withheld.

"Investment bankers and the public will not be misled so frequently if they secure an independent physical appraisal by a licensed professional engineer of property of the borrowing company. The banker will receive, devoid of prejudices, a statement of basic values which are in accord with the true worth of the property. You will observe that security issues of a questionable value evade the opinion and appraisal of the independent engineer.

"The engineer will not risk the loss of his right to practice the profession by submerging his integrity. The public has demanded the appraisal of an independent engineer on security issues."

President Roche also said:

"The Industrialist and Organized Labor, having been charged with our industrial disturbance, can utilize the engineer and turn to him for guidance and help. The licensed professional engineer, independent in thought, motivated only by his oath to government to safeguard life, health, and property, can be of inestimable value in mediating divergent viewpoints between employer and employee."

The licensed engineer is an agency which seeks the facts, free from prejudice. His intimate knowledge of the cost of production, distribution, probable life of the property and requirements for maintenance of the high standards of American livelihood permit him to act impartially in the matters of public relations at times of strife.

The licensed professional engineer has spent his livelihood in dealing with the true worth and value of machines and works and processes so that his knowledge of the commercial worth of structures and plant and work performed is accepted in public circles. He typifies that group of professional men, who represent the forces, seeking the elimination of chicanery in public and private undertakings. A forward-looking step in our restoration of prosperity will be attained when commerce, industry, public work and manufacturing interests utilize to a greater extent the services of the professional engineer and the known high degree of integrity which that profession enjoys.

ENGINEER LAME OF THE LEGISLATIVE COMMITTEE REPORTED:

At the conclusion, on May twentieth, of the longest legislative session since 1911, almost 5,000 bills had been introduced, of which 20 percent were approved by both branches of the legislature and advanced to the Governor for his final action.

Important legislation favored by the Society was the Desmond bill, which makes provisions for low-cost housing and slum clearance. The measure marks a historic step. It is the first of its kind to be enacted in the country.

It provides for an appropriation of $150,000,000, of which $50,000,000 may be loaned during the State fiscal year. A large number of engineers will be employed in housing and grade crossing work, to compensate for losses in highway work.

A broad view of legislative matters must be taken, particularly when we find by indirection the professions become adversely affected. Such an instance is contained in the budget passed by the legislature. The professions of the State should view with alarm the distortion of all licensing laws by the legislators for budget-balancing purposes.

Federal legislation relating to a permanent Public Works Administration was found to fulfill the requirements adopted by a resolution of the National Society. This measure is known as the Starnes bill, H. R. 4576, and the Mead Bill, Senate 2063. While neither of these bills provides for a permanent Department of Public Works, they do provide for changing the name of the Federal Emergency Administration of Public Works to a Public Works Administration; which is believed to be a step in the direction of permanency and of immediate public value, as well as providing permanent employment to a large group of professional engineers in private practice.

Willard S. Conlon, Executive Secretary, National Society of Professional Engineers, who has not missed one of the New York State Society meetings in eleven years, telephoned from Annapolis, the Capital of Maryland, to President Roche, notifying him that the Governor of Maryland had signed a bill requiring licensing and registration in that State. It was announced at the luncheon meeting that Maryland was the forty-first state to enact licensing and registration laws.

A bronze replica of the statute symbolizing the engineer at the World's Fair was presented to the Society by President Zurmuhlen, consulting architect to the United States World's Fair Commission. The bronze replica will be mounted on a pedestal in the New York office of the Society. The sculpture was present to receive the acclaim of the engineers. The sculpture depicts the engineers as masters of all the elements of the universe.

Dr. Steinman exposed a condition bordering on a public racket by those who would swindle the public in a sale of bootleg licenses to practice a profession. The swindle applies to all professions. The bootlegger merely inserts the word architect, or dentist, or doctor, or accountant instead of the word engineer.

There was exposed to the engineers photostatic copies of bogus licenses issued by the State of Delaware, which, upon close inspection, developed to be a receipt for a peddlers tax. In view of the fact that the receipt bore the name of a public official of the State of Delaware, caused the Society to complain to the Attorney General of New York and the State Department of Education in asking that Delaware cooperate in eradicating such a practice which brought ill repute to the name of that state.

Senator Thomas C. Desmond, a Director of the State Society was introduced as the "Engineer of Massachusetts and the Statesman of New York." The $150,000,000 housing bill of New York bears the Senator's name.

(Continued on page 21)

An Open Letter

And Some Revealing Facts and an English Grammar Test

By JOHN J. CATON, Director of the Chrysler Institute of Engineering

Mr. Willard S. Conlon, Executive Secretary
National Society of Professional Engineers
National Press Building, Washington, D. C.

Dear Mr. Conlon:

Our Dr. James S. Thomas, who is not only President of the Chrysler Institute of Engineering but also President of Clarkson College of Technology in Potsdam, New York, has passed along to me your letter with enclosures. The enclosures are two addresses, one by yourself and the other by Dr. D. B. Steinman your past president.

I have perused both of these papers very carefully, and I am already in agreement with all you have to say. By way of identification, let me say: I happen to be the founder of the Chrysler Institute of Engineering and am still Director of the Educational Activities for this Corporation. I am 60 years of age, 23 years of which were spent in four universities as professor of mechanical engineering and 21 years of which were spent as practicing engineer. I mention this only with a single thought which is that you may have confidence in what I am attempting to say.

It should be remembered that engineering is a new science and very young as time is measured. We are just about to shake the swaddling clothes of an art and attempting to push ourselves up into a professional science. I feel that before long a pre-engineering education will be required before one can acquire sufficient credit for registration in an accredited college of engineering. The other professions such as medicine and law are just about a jump ahead of us in this respect.

I come from the State of New Jersey, and I can well recall, when a boy, that there were not, perhaps, more than a half dozen medical colleges or colleges of law in the whole United States. The rank and file of the doctors and lawyers of that day read law or studied medicine with an old practitioner in the town in which they resided. When he felt that his protege had learned as much as he would, he recommended him to the board.

Now, I recall that New Jersey never had a state board. It had county boards, whose members were elected by the electorate of the county in the manner in which the sheriff and other county officers were elected. It carried no monetary compensation, except a relief from a certain amount of taxes. It did not attract attorneys, and physicians were invariably too poor politicians to make the grade. Hence the board was invariably made up of farmers who had a considerable amount of taxes imposed upon them and sought to obtain membership on this board for the amount of tax relief they could get.

In the colleges of medicine or law of that day two years were required for graduation from either of these professions. Later the Medical Association came into being and they raised the standard to four years with a high school prerequisite for matriculation. Later they imposed a two year pre-med prerequisite and still later added another two years making four years pre-med a requirement.

The doctors then insist that the graduate be required to serve two years as an interne in a hospital. Here he is applying these acquired fundamentals under the supervision of qualified physicians. It is here also that the specialist is born. Sometime back the writer was permitted to address the Medical Association of this state and the title of the talk was "Is a College Education Necessary?" In it I brought out all the salient facts for and against it. In some instances there were more reasons why one should not have acquired a particular college education rather than why he should.

The chairman of the meeting, an eminent physician of our city, in concurring with many of the things I said, said this: "I myself never attended a college of medicine. I came up in the day when in many instances it was practically impossible to have done so. I succeeded in spite of it not because of it. It is the job of the medical profession today" says he, "to prevent disease as well as treat it, so men had to be freed from the drudgery of doing everything that bread and butter forced upon them. They could not do the thing most receptive to their minds, allowing them to isolate the germ of various diseases and then develop a serum to prevent its occurrence. So," says he further, "this or that chap while an interne may find the treatment of human eyes to be more receptive to him. He loves it better than anything else. He is not interested in cancers, stomach troubles, or the other diseases. He leaves the hospital and becomes an eye specialist. That man before he passes on to his Maker can pass back to his profession more known truths about the human eye than were ever known in the history of medicine."

Now what is true of the medical profession is equally true of engineering with respect to specialization, and specialization cannot be confined to a college of engineering any more than it can be confined to a college of medicine or law. The fundamentals are all that these colleges have to offer us. They equip us with a metal tool box and leave us to find ourselves. We in engineering are handicapped from the beginning because we have no measuring stick. If we as the individual may prove conclusively to ourselves whether our aptitudes lead to engineering or if not then to some other profession or business.

There is quite a distinction between an engineer and a man with an engineering education. These are not even the opposite ends of the same stick which accounts for the great mortality among young men who would hope to follow engineering as a profession. They have the capacity to absorb but not the ability to apply the fundamentals which they acquired.

In the other professions the prerequisites are nothing more or less than a glorified cultural education. It serves two purposes. It gives the candidate four years after leaving high school to get his feet upon the ground, push his border lines back, and make a decision that is vital to him at a time when his mind more mature, even more plastic to the touch. During this four year cultural training, he has acquired poise, carriage, approach, and attack which are very conspicuous by their absence in the engineers.

There is no profession that has more misfits than the engineering profession. The average engineer in too many instances cannot write a grammatically correct business letter and as for listening to him give a talk it too frequently is pathetic. There are but a few who can so we older engineers, if we may be called such, attend all of our engineering meetings to listen to the same old regime tell the world about the rest of us. The lack of contact with the liberal arts is the reason for this. In Europe the situation is entirely different, even in demoralized Russia. To be an engineer the European continent requires first, a competent cultural education. This puts the candidate in a position to find himself and at the same time puts him on a par with his colleagues frequently called barristers, Lord Mayors, and prelates. Over there they look up at an engineer and not down upon him as is frequently the case in America. In England he must acquire two years of shop after acquiring his bachelor of arts degree before being permitted to enter the college of engineering. Now in the college of engineering they impose four more years of actual engineering subjects. Upon completion of this they graduate him as an engineer not as an electrical, chemical, civil, or mechanical engineer. From hence all he needs is to adopt a handbook as his companion. However, they have in these countries another type of school called the polytechnic which has a four year course and teaches about the same subjects as we do in our American colleges of engineering. The difference being that they graduate him not as an engineer but as a technician which title he religiously adheres to during the natural term of his life.

We in America have a four year engineering course of which only two years is devoted to engineering subjects. The first two years we are invariably cleaning up the dirt that should have been cleaned up before they permitted us to enter the college of engineering. Then they graduate us as so-called specialists in civil, mechanical, chemical, electrical, etc. You invariably never see old engineers practicing in the type from which they graduated, and this is obvious because the line of demarcation of where the fundamentals of one type begins and the other type ends is so indistinct that you can rarely discern it.

The engineer has given to society practically everything that it enjoys but on the other hand this same society does not care to have us participate in their political, economic, or social activities and the reason seems to be that we are not prepared. We have not the cultural background as has that of the other professionalists and we have no one to blame but ourselves.

We are told by the Conference of Colleges that we have 1056 accredited colleges of all kinds and perhaps an equal number of unaccredited ones which however are doing just as big a job as the accredited ones because they too some day want to be accredited and they must come into court with "clean hands." This same conference tells us that 204 of this total number are engineering colleges, and of the sum total of all these colleges they can find but two presidents of any of these institutions who would be or are a practicing engineer. We have not the cultural background to sit there so hence they do not permit us to sit. Of course, once in a while they make us vice-president of a "something" or perhaps the official hand-shaker for a corporation but always in a position where they keep our fingers out of the money bag.

If an engineer had no ambition other than to become a good technician then I would say that his education is adequate. But humans in America do not think in such terms. We all want to rise above being departmental actors, and then we find we have not the background to follow through.

In October past the Board of Regents of the State of New York held a conference for the deans of the various colleges of engineering of that state. It lasted two days and the thought discussed was, Shall the state of New York impose a pre-engineering prerequisite upon candidates seeking admission to our colleges of engineering? These gentlemen seemed to be all in favor of it until it came to a showdown in voting. Then, of course, the self-preservation of the individual induced him to ask that the vote be deferred and that another meeting be held this coming May. A pre-engineering course would undoubtedly reduce the volume in these colleges of engineering, and that is exactly as it should be. The imposition of even a two year pre-engineering course would be helpful but is not all of the answer. It would give these men an opportunity to find out whether they are mathematical minded or whether they have the ability to apply things mechanical.

In a previous paragraph I stated that an engineer invariably could not write a grammatically correct business letter. At this I am not guessing and in this the writer is just as deficient as those he is decrying.

For candidates seeking admission to our clinic in engineering which is a graduate school attached to the Chrysler Institute of Engineering we require two tests. One is a grammer school grammar test and the other is about the equivalent of a high school vocabulary test. Since the inception of this school seven years ago, in excess of 10,000 recently graduated engineers making application for admission to this clinic have taken both tests. Up to date less than 2% have passed either one with better than 75% and in many instances even men with master's degrees and coming from some of our so-called engineering schools have made averages as low as 18%. The vocabulary test, we are told by those who compiled it, if one were to pass it 100% it would indicate that he had a vocabulary of less than 5000 words including the alphabet. I am sending you copies of both tests and you are free to reprint them, if you care to, and to do with them as you see fit. If at any time you happen to be in Detroit metropolitan area, I shall be glad to have you visit with me and shall permit you to examine the files to ascertain for yourself the truth of the above assertion.

We carry in our graduate school or engineering clinic from 75 to 100 men picked from the various colleges of engineering throughout the United States, Canada, and Europe. This group should be broken down into two sections. We refer to them as juniors and seniors or first and second year men, depending on how long they have been with us.

We are not solicitous of whether they are civil, mechanical, electrical, chemical, or whatnot. It is the man we are interested in and whether he has the ability to apply the fundamentals he has learned.

The selection of these men is made by our Educational Board and this board is made up of seven of our executive engineers with Mr. Chrysler as its chairman and Dean Henry C. Anderson of the College of Engineering, University of Michigan is the one outside member.

Yours very truly,

CHRYSLER INSTITUTE OF ENGINEERING
(Signed) John J. Caton,
Director.

Following is the Grammar School Grammar Test of which Mr. Caton writes:

Each of the following sentences contain two or more choices of words. In each case cross out the incorrect word. Since speed is not part of the test, take your time, and if you are not certain of an answer, guess at it.

1. Henry has (ate) three apples and has (gave) his brother one.
   (eaten) (given)
2. (Take) me the small picture first and then (bring) the large
   (Bring) (take)
   ones to Miss Blank.
3. It must (of) been very late when the boys (done) their work.
   (have) (did)
4. (to) (two) (too)
   (Two) men were (to) many (two) do the work.
   (Too) (too) (to)
5. Four pies were to be divided (between) six boys, and as a result,
   (among)
   a fight began (among) two friends.
   (between)
6. Did you see (they) and (us) in sailor suits?
   (them) (we)
7. Every pupil (is) to remember that this is (their) school.
   (are) (his)
8. The cold wind blew (fierce) and made the children's cheeks look
   (fiercely)
   very (pretty).
   (prettily).
9. (Set) the light near your mother and (lie) the book on the table.
   (Sit) (lay)
10. Everybody (is) able to do (their) work by (themselves).
    (are) (his) (himself)
11. He (don't) know who's to (chose) the present.
    (doesn't) (choose)
12. You (was) never one to complain that the news we received
    (were)
    (were) unfavorable.
    (was)
13. (It's) time the dog had (its) bath.
    (Its) (it's)
14. The jury (have) returned (it's) verdict.
    (has) (its)
    (their)
15. Play the game (like) I do, and you shall not fail (as) John.
    (as) (like)
16. Did you ask if you (could) go to the library (and) get a book
    (might) (to)
    for school work?
17. The pair of scissors (is) not in (its) place.
    (are) (their)
18. The graduating class (have) just held (its) exercises.
    (has) (their)
19. As the men (lay) in waiting for the enemy they saw three battle-
    (laid)
    ships (laying) at anchor in the harbor.
    (lying)
20. He put his hands (in) his pockets and said, "I am the (tallest)
    (into) (taller)
    of the two."
21. John and his father (have) decided that twelve dollars (is) too
    (had) (are)
    much to pay.
22. Please (leave) the papers on my desk remain as they are, for I
    (let)
    have (lain) them in a certain order.
    (laid)
23. Mary (can) go with us, (may) she not?
    (may) (can)
24. Each of the boys (hope) to have (their) work accepted.
    (hopes) (his)
25. Did the teacher look very (sternly) at the pupils when they did
    (stern)
    so (poor) in the examinations.
    (poorly)
26. I like to help those (who) I love and (who) I know love me.
    (whom) (whom)
27. Measles (numbers) many children among (their) victims.
    (number) (its)
28. I believe (he) and (she) to be honest.
    (him) (her)
29. It is I who (is) to blame for the committee making (its) report.
    (am) (their)
30. Mary's money was stolen (off) her, which was different (than)
    (from) (from)
    losing it.
31. The teacher was standing (behind) the new pupil when she
    (in back of)
    asked the child's father, "Have you any other children (beside)
    (besides)
    this boy?"
32. Neither John nor Frank (are) failing on the examniations be-
    (is)
    cause history and geography (is) easy for them.
    (are)
33. (Most) any child can learn to swim (good) and almost all young
    (Almost) (well)
    people enjoy this sport.
34. Everyone was (their) except (she) and (I).
    (there) (her) (me)
35. The committee (has) quarreled among (itself) about (their)
    (have) (themselves) (its)
    report.
36. I knew the visitors to be (them) as we invited all (whom) we
    (they) (who)
    thought could come.
37. As there is no doubt of (him) being invited, you (can) rely
    (his) (may)
    on (me) being there also.
    (my)
38. Every book and paper (was) found in (their) place.
    (were) (its)
39. As the class (was) unable to agree on a president, (they) post-
    (were) (it)
    poned the election.
40. I (shall) see that John studies in the future, and I believe that
    (will)
    he (will) regret this later.
    (shall)

STUDENT GUIDANCE

In New York City during the past year, a commendable program of guidance of prespective engineering students has been developed. It has been conducted not by the engineering schools but by the profession—under the able and sincere leadership of Engineer Arthur G. Hayden as Chairman of the New York Engineers' Committee on Student Guidance.

The high spots are covered as follows in a report by Engineer Hayden: "In brief summary, 15 high school have been visited; about 2000 students, in groups of about ten, received information and advice about engineering as a career and about 75 students followed up the group conferences by contacts with engineers in practice. This work has been valuable *in that many students who had expressed an interest in engineering* as a career, *learned that engineering is a profession rather than a vocation and decided to follow other lines.* Some students of real promise persisted in their ambition to attend an engineering college and enter the profession; *but the drop from 2000 met in group conferences to 75,* who were granted individual conferences with practicing engineers, *is significant.*"

PITTSBURGHER HONORED

Peter F. Loftus, Pittsburgh consulting engineer, was given an honorary degree of doctor of laws at the recent annual convocation of Ottawa University at Ottawa, Ont. Mr. Loftus is a member of the Pittsburgh Chapter of the Pennsylvania Society of Professional Engineers.

IDAHO'S LICENSING ACT

AN ACT

RELATING TO THE PRACTICE OF ENGINEERING AND THE LICENSING OF ENGINEERS IN ALL THE BRANCHES OF ENGINEERING, ETC. As Amended by the Legislature.

Based upon the "Model Law," approved and endorsed by seventeen collaborating American engineering organizations, on the draft revised in 1937 and printed December, 1937.

American Society of Civil Engineers, American Institute of Mining and Metallurgical Engineers, American Society of Mechanical Engineers, American Institute of Electrical Engineers, American Association of Engineers, American Engineering Council, American Institute of Chemical Engineers, American Institute of Consulting Engineers, American Society of Heating and Ventilating Engineers, American Society of Safety Engineers, Connecticut Society of Civil Engineers, Engineers' Council for Professional Development, Institute of Radio Engineers, National Council of State Boards of Engineering Examiners, National Society of Professional Engineers, New York Association of Consulting Engineers, Society of Naval Architects and Marine Engineers.

SPONSORED BY THE IDAHO SOCIETY OF ENGINEERS

President: Wm. P. Hughes, Lewiston; Vice-President: W. P. Havenor, Pocatello; Secretary: Raymond J. Briggs, Boise; Treasurer: Frank K. Hummel, Boise.

LEGISLATIVE COMMITTEE

Ray J. Lyman (Chairman), Boise; G. C. Scharf, Boise; Lee R. Cooke, Nampa; R. F. Hamilton, Pocatello; Hans C. Hulbe, Boise.

Signed by the Governor March 11, 1939.

AN ACT

RELATING TO THE PRACTICE OF ENGINEERING AND THE LICENSING OF ENGINEERS IN ALL BRANCHES OF ENGINEERING, EXCEPT MINING, INCLUDING LAND SURVEYING AND AGRICULTURAL ENGINEERING; PRESCRIBING QUALIFICATIONS AND CONDITIONS FOR THE ISSUANCE OF LICENSES; CREATING THE STATE BOARD OF ENGINEERING EXAMINERS AND PRESCRIBING ITS POWERS AND DUTIES; PRESCRIBING PENALTIES FOR VIOLATION OF THE ACT, AND REPEALING SECTIONS 53-1001 TO 53-1014, INCLUSIVE AND SECTIONS 53-2301 TO 53-2305, INCLUSIVE, OF IDAHO CODE ANNOTATED, 1932, AND ALL ACTS AND PARTS OF ACTS IN CONFLICT HEREWITH.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF IDAHO:

Section 1. DECLARATION OF POLICY.—That, to safeguard life, health and property, every person, practicing or offering to practice professional engineering, as herein defined, shall submit evidence of his qualifications and be registered as hereinafter provided; and it shall be unlawful for any person to practice or offer to practice professional engineering in this state, or to use in connection with his name or otherwise assume, use or advertise any title or description tending to convey the impression that he is a professional engineer, unless such person has been duly registered under the provisions of this act.

Section 2. DEFINITIONS.—As used in this act, unless the context or subject matter requires otherwise:

(a) ENGINEER AND PROFESSIONAL ENGINEER.—The terms "engineer" and "professional engineer" mean a person who is qualified by reason of his knowledge of mathematics, the physical sciences, and the principles of engineering, acquired by professional education and practical experience to engage in the practice of professional engineering.

(b) ENGINEERING AND PROFESSIONAL ENGINEERING.—The terms "engineering" and "professional engineering" include any professional service, such as consultation, investigation, evaluation, planning, designing, land surveying, construction, or responsible supervision of construction or operation, in connection with any public or private utilities, structures, buildings, machines, equipment, processes, works, or projects, wherein the public welfare or the safeguarding of life, health, or property is concerned or involved, when such professional service requires the application of engineering principles and data. The work ordinarily performed by persons who operate or maintain machinery, or equipment, is not included within the terms "engineering" and "professional engineering" as used in this Act.

(c) LAND SURVEYOR AND LAND SURVEYING.—The term "land surveyor" means an engineer who engages in the practice of land surveying, but does not practice any other line of engineering, and whose license is limited to land surveying. The term "land surveying" includes responsible supervision of surveying of areas for their correct determination and descriptions and for conveyancing, or for the establishment or re-establishment of land boundaries and the plotting of lands and subdivisions thereof.

(d) BOARD.—The term "board" means The State Board of Engineering Examiners.

(e) RESPONSIBLE CHARGE. The term "responsible charge" as used in this Act shall mean the control and direction of the investigation, design, construction or operation of engineering work, requiring initiative, professional skill and independent judgment.

See Sec. 12(b)

Section 3. THE STATE BOARD OF ENGINEERING EXAMINERS.—That a board to be known as "The State Board of Engineering Examiners" is hereby created. It shall consist of five professional engineers, appointed by the Governor from among nominees recommended by any organized and generally recognized engineering society in the state. The members of the board shall have the qualifications required by Section 4 of this act. The members of the first board shall be appointed within 90 days after the approval of this act, to serve for the following terms: One member for one year, one member for two years, one member for three years, one member for four years and one member for five years, from the date of their appointment. Each member of the board shall take, subscribe and file the oath required by Chapter 4 of Title 57, Idaho Code Annotated, before entering upon the duties of his office. On the expiration of the term of any member, his successor shall be appointed in like manner by the Governor for a term of five years. Members of the board shall hold office until the expiration of the term for which they were appointed and until their successors have been appointed and have qualified.

Section 4. QUALIFICATIONS OF MEMBERS OF BOARD.—Members of the board shall be citizens of the United States and residents of this state, and they shall have been engaged in the practice of engineering for at least 12 years and shall have been in responsible charge of important engineering work for at least five years. Responsible charge of engineering teaching may be construed as responsible charge of important engineering work.

Section 5. COMPENSATION AND EXPENSES OF BOARD MEMBERS.—Each member of the board shall receive **such compensation as the board from time to time may fix but not exceeding $10 per diem for the time actually spent in attending** to the work of the board or any of its committees and for the time spent in necessary travel; and, in addition thereto, he shall be reimbursed for all actual traveling, incidental and clerical expenses necessarily incurred in carrying out the provisions of this Act.

Section 6. REMOVAL OF BOARD MEMBERS AND FILLING VACANCIES.—The Governor may remove any member of the board for misconduct, incompetency, neglect of duty, or for any other sufficient cause. Vacancies in the membership of the board shall be filled for the unexpired term by appointment by the Governor as provided in Section 3.

Section 7. BOARD—ORGANIZATION AND MEETINGS.—The board shall hold a meeting within 30 days after its members are first appointed and thereafter shall hold at least one regular meeting each year. The by-laws may provide for such additional regular meetings and for special meetings. Notice of all meetings shall be given as may be provided in the by-laws. The board shall annually elect a chairman, a vice chairman and a secretary, who shall be members of the board, and they may provide for an assistant secretary who need not be a member of the board. Three members shall constitute a quorum.

Section 8. BOARD—POWERS.—The board shall have the power to adopt and amend all by-laws and rules of procedure, not inconsistent with the Constitution and Laws of this State, which may be reasonably necessary for the proper performance of its duties and the administration of the act and the regulations of proceedings before the board. It shall adopt and have an official seal. **It shall have power to provide an office, office equipment and facilities and such books and records as may be reasonably necessary for the proper performance of its duties.**

In carrying into effect the provisions of this act, the board, under the hand of its chairman and the seal of the board, may subpoena witnesses and compel their attendance, and also may require the production of books, papers, documents, etc., in a case involving the revocation of registration or practicing or offering to practice without registration. Any member of the board may administer oaths or affirmations to witnesses appearing before the board. If any person shall refuse to obey any subpoena so issued, or shall refuse to testify or produce any books, papers, or documents, the board may present its petition to the district judge of the district in which the witness may be found, setting forth the proceedings theretofore taken by the board to subpoena the witness and the failure of the witness to attend and briefly stating the subject matter upon which the testimony of the witness is required by the board; thereupon, such district judge may cause an order to be issued, requiring such witness to appear before the board to testify and to produce such books, papers and other documents as may be deemed necessary and pertinent by the board. Any person failing or refusing to obey such order shall be punished as for contempt of court, and any person failing to obey the subpoena of the board shall be guilty of a misdemeanor and shall be punished accordingly.

Section 9. RECEIPTS AND DISBURSEMENTS.—The secretary of the board shall receive and account for all moneys derived under the provisions of this Act, and shall pay the same monthly to the State Treasurer, who shall keep such moneys in a separate fund to be known as the "Professional Engineers' Fund." Such fund shall be kept separate and apart from all other moneys in the Treasury, and shall be paid out only on approval of the board. All moneys in the "Professional Engineers' Fund" are hereby specifically appropriated for the use of the board. The secretary of the board shall give a surety bond to the State in such sum as the board may determine. The premium on said bond shall be regarded as a proper and necessary expense of the board, and shall be paid out of the "Professional Engineers' Fund." The secretary of the board shall receive such salary as the board shall determine in addition to the compensation and expenses provided for in Section 5. The board may employ such clerical or other assistants as are necessary for the proper performance of its work, and may make expenditures of this fund for any purpose which in the opinion of the board is reasonably necessary for the proper performance of its duties under this Act, including the expenses of the board's delegates to annual conventions of, and membership dues to, the National Council of State Boards of Engineering Examiners. Under no circumstances shall the total amount of expenditures approved by the board in payment of the expenses and compensation provided for in this Act exceed the amount of the examination and registration fees collected as herein provided. All warrants on said "professional Engineers' Fund" shall be drawn by the State Auditor on vouchers approved by the board and the State Board of Examiners.

Section 10. RECORDS AND REPORTS.—The board shall keep a record of its proceedings and a register of all applications for registration, which register shall show (a) the name, age, and residence of each applicant; (b) the date of the application; (c) the place of business of such applicant; (d) his educational and other qualifications; (e) whether or not an examination was required; (f) whether the applicant was rejected; (g) whether a certificate of registration was granted; (h) the date of the action of the board; and (i) such other information as may be deemed necessary by the board.

The records of the board shall be prima facie evidence of the proceedings of the board set forth therein, and a transcript thereof, duly certified by the secretary of the board under seal, shall be admissible in evidence with the same force and effect as if the original were produced.

(Continued on Page 19)

NEWS OF STATE SOCIETIES

Editor's Note: THE AMERICAN ENGINEER will carry reports of State and Chapter meetings in the issue succeeding their receipt. We must have copy by the 20th of the month preceding the month of issue. Copy received after that date runs the risk of not being on time.

ARKANSAS

ARKANSAS SOCIETY OF PROFESSIONAL ENGINEERS RESOLUTION RECENTLY PASSED

WHEREAS, it is a matter of frequent occurence that men who have not had engineering training or experience are appointed to engineering positions in governmental agencies or are given engineering titles when the position they hold involves no engineering work;

AND WHEREAS, the filling of engineering positions by men who have not had the training and experience necessary to enable them to make important decisions which require such training and experience is contrary to the public good and is conducive to waste and extravagance in handling public funds;

AND WHEREAS, giving a man an engineering title in a position that does not involve engineering work is deceptive and misleading to the public and is prejudicial to the engineering profession;

NOW THEREFORE, BE IT RESOLVED by the Arkansas Society of Professional Engineers that such practices be heartily condemned, and that a copy of this resolution be sent to our representatives in Congress and to the heads of government agencies, and that they be requested to investigate those practices and to cooperate in stopping them whenever they occur.

WHEREAS, it has been brought to the attention of the Arkansas Society of Professional Engineers that in a number of instances, engineers who hold full time salaried positions with public agencies and with Universities and Colleges, have been permitted to furnish engineering services and advice with compensation to other public bodies or to private corporations or individuals; and

WHEREAS, such practice is considered unethical as well as contrary to sound public policy by all professional societies; and

WHEREAS, such competition is unfair to professional engineers who are engaged in private practice and who are dependent upon their practice for their livelihood;

NOW THEREFORE, be it Resolved by the Arkansas Society of Professional Engineers that the performance of outside practice by engineers employed at full time salaries by public bodies be heartily deplored; and

BE IT FURTHER RESOLVED that the attention of all public officials be called to this matter and that their cooperation be requested in stopping such practices.

WHEREAS, Act No. 335 of the Fifty-second General Assembly of the State of Arkansas requires that Registered Professional Engineers shall be retained to design and supervise the construction of all public works costing more than $5,000.00; and

WHEREAS, it is of distinct advantage to the public welfare that all engineers employed in responsible positions on public works should be Registered Professional Engineers;

NOW THEREFORE, BE IT RESOLVED by the Arkansas Society of Professional Engineers that all engineers employed in responsible positions by public bodies shall be Registered Professional Engineers, and

BE IT FURTHER RESOLVED that a copy of this resolution and a copy of Act No. 335 be sent to the responsible heads of all state and federal agencies who employ engineers in this state, together with a request that they conform to the requirements of the act by placing only Registered Professional Engineers in Engineering positions of responsibility and trust.

Governor Bailey recently made the following appointments to the Arkansas State Board of Registration for Professional Engineers.

N. B. Garver, Chief Bridge Engineer of the Arkansas Highway Department Little Rock, Arkansas.

R. E. Williams, Consulting Mechanical Engineer, Little Rock, Ark.

Henry E. Hunn, Chief Engineer, Waterworks System, Van Buren, Ark.

These together with holdover members C. S. Christian, Ray Parmalee and Secretary M. Z. Bair, constitute a board of Registration composed strictly of members of the National Society of Professional Engineers.

These appointments are effective as of July 1.

K. W. Lefever, Secretary

CONNECTICUT

CONNECTICUT ENGINEERS PLAN INSPECTION TRIP FOR OCTOBER 12, 1939

The success of the 1938 Engineers Inspection Trip of the New York World's Fair will long be remembered.

The success of this trip created so much publicity and good will for the Society that the State Board of Directors voted to make such a trip an annual event. To this end, each October 12th—Columbus Day—will be known as "Engineers Day" in the State of Connecticut. Each year a special committee will be appointed and plans formulated for an engineering inspection trip to some outstanding point of interest.

Preliminary plans have been completed by the committee and an announcement will shortly go forth to all members of the State Society, explaining and giving an opportunity for reservations to be made for the Engineering inspection trip to be held on October 12th of this year. This year's inspection trip will be limited to a total maximum number of 400—thereby, reducing to a considerable margin the number of engineers participating in the previous year's trip, totaling 1,000.

Preliminary plans shortly to be announced will consist of an engineering inspection trip thru "America's Largest Electrical Work Shop"—the General Electric Company's main factory at Schenectady, New York.

Early on the morning of October 12, 1939 a special chartered train will leave Stamford, Conn., stopping at way stations where engineers will entrain for the day's trip. Luncheon will be served enroute with the special train arriving at a private siding at approximately 1 P. M. A full and unusual program has been promised at the reception and banquet, immediately following at the Van Curler Hotel in Schenectady, New York.

The committee in charge of arrangements will consist of: Engineer Chairman, William J. Mahan, who so successfully carried the 1938 trip thru to a successful conclusion and with Engineers Lewis C. Smith, Allan A. Watson and Richard C. Lipps, assisting.

Engineer members of other state associations who feel they might like to join with the Connecticut group on this inspection trip are cordially invited to correspond with Secretary Lewis C. Smith, 904 Quinnipiac Ave., New Haven, Conn.

INDIANA

I.S.P.E. NEWS LETTER

August, 1939

Indianapolis, Indiana

Issued by Indiana Society of Professional Engineers, Inc.

Editor, T. J. Poggiani — Operations Mgr., W. A. Miller

Assoc. Editor, H. L. VanHorn — Circulation Mgr W. M. Griffin

NEW MODEL LAW

One of the most dangerous threats, it seems to us, to the entire engineer's registration movement is contained in the proposal for a new Model Law, made by the Board of Directors of the American Institute of Electrical Engineers as a substitute for the present one as a model for States to follow in enacting registration laws for engineers.

The present law, after which existing registration acts in nearly all the States are patterned, restricts the practice of the profession of engineering to those who are qualified and registered in the interest of the public's health, safety, and property. The Indiana Act, for example, goes on to define the term "practice of professional engineering" as: "any professional service, including consultation, investigation, evaluation, planning, design, or the responsible supervision, of any construction or operation, in connection with any public or private utility, structure, building, machine, equipment, process, works, or project, wherein the public welfare, or the safeguarding of life, health or property is concerned or involved, when such professional service requires the application of engineering principles or data."

The proposal of the AIEE would scrap all this, towards a realization of which numerous professional engineering societies, such as our own, registration boards, and engineers in general have been working for years. Instead, they propose a general law based on a new conception of the fundamental principals of registration. For one thing, and this is where we believe almost the whole danger lies, they propose that "it is not necessary that all engineers be subject to legislation (i. e. registration) but only those who offer service for hire, or are public employees."

The point has been made, in the discussions on the extent to which registration should cover, in the practice of engineering that the design of an electric motor for use in elevator work, or the design and manufacture of mechanical equipment for general use are just as much involved in "public safety" as is the design of a public building or a bridge or highways. Why should a man who designs, constructs, or operates a sewage disposal plant be subject to registration, in the interest of public welfare, when the

engineer who designs the mechanical and electrical equipment is not? Is it not obvious that the design of any electrical or mechanical household appliance is a problem for the qualified engineer? Is it not true that the safety of the public which uses the article demands the protection which registration of professional engineers affords?

Engineers should be united against this proposal of the AIEE, since it tears down the whole structure of professional registration law as now established in the interest of the health, safety and property of the public.

DEDICATION OF MEMORIAL

If plans now contemplated by the Society materialize, the Stotsenburg-Fritz Memorial, located in the roadside park on State Road 62 near Leavenworth, will be dedicated at a ceremony befitting the occasion early this fall. The plaques, molded in bronze, were displayed at the July meeting of the Society, and from the general discussion which ensued, it was decided to name a committee to complete the activities of the Memorial Committee, and develop the program for the dedication. Engr. Ray Bower, recent Director of the Society and District Engineer for the Highway Commission at Seymour, is to serve as Chairman of the new group, and will be assisted by Engrs. Cohen, Wimsett, Wolfskill and H. Jones, the latter being the Chairman of the Memorial Committee which made the plaques. The Public Relations Committee with Engr. Val McLeay as Chairman is also to assist in the enterprise.

NEW DIRECTOR

The St. Joseph Valley Chapter has elected John E. Hupp, Jr., to represent them as a Director on the Executive Board of the Society. Engr. Hupp, who is City Engineer of LaPorte, attended the July meeting of the Board and of the Society.

The Calumet Chapter did not have the opportunity to elect their representative on the Executive Board before suspending meetings for the summer, and their new Director will not be chosen until the September meeting of the Chapter.

ENFORCEMENT COMMITTEE ACTIVE

The Enforcement Committee of the Society with Engineer Don Walker as Chairman, continues to be an outstanding factor in the progress of our Society and in the recognition of engineers .

At the July meeting Chairman Walker reported several new instances of cooperation with his Committee by commercial organizations. The Indiana Bell Telephone Company has agreed to cooperate in eliminating the misuse of the term "engineer" in the classified section of its directory. Montgomery-Ward has expressed willingness to censor its advertising matter so as not to permit the offering of "free engineering" service where there is no registered engineer on the staff. Also, the office of the Secretary of State of Indiana has agreed to eliminate "engineers" or "engineering" from the articles of incorporation of organizing firms which are not to be directly connected with engineering work.

It has been found that in a great many of the enforcement cases reported to the Committee there was no intention to violate the registration law. In fact, most of the commercial organizations have expressed a desire to assist in upholding the law. Apparently the greatest obstacle to be overcome in this connection is ignorance of the law and of the aims and standards of the engineering profession and of our Society.

The one place where gross violations of the law could be possible and is probably done is in the making of various platts for records in the County Courthouses. If anyone, in going through County records comes across any recent platts pertaining to surveys of lands or drainage submitted by an engineer not properly sealed with a professional engineers seal, this violation should be called to the attention of this Committee.

Chairman Walker and his Enforcement Committee are doing fine work. Thev can do even a better job if every member of the Society will consider himself to be a member of the Committee. Each of us must report to Engr. Walker all violations of the law which come to our attention and his Committee will carry on from there. Also, each of us must do our part to inform the public concerning the registration law and what it means to each individual as a measure in the interest of public health and public safety. Only through making the public "engineer conscious" can we hope to benefit as professional men.

NEW OFFICERS—CALUMET CHAPTER

At a recent meeting of the Calumet Chapter the officers for 1939-1940 were elected. Engr. Ray Seely, Consulting Engr. of Hammond was elected President. Engr. L. L. Dillingham, Office Engineer, State Highway Comm., Valparaiso is Secretary. Engr. Frank Schutt, Vice-President of the Society last year was re-elected Treasurer. Engrs. B. Hoffman, L. Besozzi, H. Biene were elected Directors.

ST. JOSEPH VALLEY CHAPTER OFFICERS

Recently the St. Joseph Valley Chapter elected the following engineers as officers. Leo A. Witucki, South Bend, President; C. A. Nelson, South Bend, Vice-President; M. J. Henoch, LaPorte, Secretary; John A. Kelley, Michigan City, Treasurer; R. F. Berns, C. L. Jankowski, M. T. Kenney and D. L. Warren were elected Directors

NEW CHAIRMAN

President Johnson has announced the appointment of Engr. John E. Hupp, Jr., City Engineer of LaPorte as Chairman of the City Engineers Committee. Engr. Hupp will nominate other members of his committee and work up a program which is to include development of legislative proposals and has agreed to discuss the whole program of welfare for city engineers with others in the field, at the fall meeting of the Indiana Municipal League.

MISSOURI

(From The Missouri Engineer, official publication of the Missouri Society of Professional Engineers).

Engineer R. P. Cummins, Superintendent of Equipment of the Missouri State Highway Department, has been selected by the nominating committee as the official candidate for President of the Society for the next year: Others named by the committee are as follows:

A. H. Baum, Jr., member of the firm of Baum and Freese, St. Louis, for first vice-president.

E. B. Black, member of the firm of Black and Veatch, Kansas City, for second vice-president.

Bruce Williams, proprietor of Bruce Williams Laboratories, Joplin, for third vice-president.

W. H. McDill, Junior Engineer for WPA, Jefferson City for secretary-treasurer.

W. H. Burgwin, Division Engineer, Division No. 4, Missouri State Highway Department, Kansas City; and Earl R. Schultz, Chief Engineer, Little River Drainage District, Cape Girardeau, have been named as candidates for directors-at-large for the two three-year terms.

Frank Beard, Consulting Engineer, Kahoka, has been named candidate for the unexpired term of one year vacated by A. F. Sachs of Kansas City.

The nominating committee consisted of J. B. Butler, Chairman; M. E. Countryman, H. E. French, Jerome Moss and E. E. Howard.

Engineer Bruce Williams, Joplin, Chairman of the Annual Convention Committee, has announced that Friday and Saturday, October 6-7 have been selected for the dates of the Third Annual Convention to be held at Joplin under the sponsorship of the newly organized Southwest Missouri Chapter.

Tentative plans for the convention will be discussed by the statewide committee at a meeting to be held in Jefferson City at an early date.

A two-day convention was decided on because of the expanding program of the Society and its required discussion. The two days will be filled with interesting activity and the Joplin area offers a great deal of interest to visitors.

Arrangements are being considered for a trip to the new Grand River Dam near Vinita, Okla. This is one of the largest engineering projects in the middle-west and the trip should prove the highlight of the program.

More than 200 people attended the first official meeting of the Engineers' Club of Jefferson City, in June. The program included a barbecue lunch and the showing of the government film, "The River."

The meeting was held on the grounds of the Jefferson City Country Club and the 110 engineers and their ladies seemed to enjoy the program immensely.

A new program for the promotion of the license law is now under way. Deliberate planning based on experience gained during the last session of the legislature and on information obtained from other states, is producing a program that should insure success. The plan is such that there should be no loose ends left unwatched by the time the legislature meets again.

Roughly, the plan now being considered is based on the development of a detailed organizaton that will reach into every county and insure personal contact with every legislator.

To assist in the formation of this organization, questionnaires have been mailed to every member asking certain confidential information that will aid materially when the time comes to put the organization to work. It is imperative that the members fill out and return these questionnaires promptly.

The Southwest Missouri Chapter has announced the list of nominations for officers to be elected for the first year of operation of the new chapter. The list follows:

For President: Bruce Williams, Wm. F. Netzeband.

For Vice-President: Robert D. Moore, Booker H. Rucker, Jr.

For Secretary-Treasurer: L. B. Mitchell, Jr., H. E. Serage.

For Director—3-year-term: Geo. M. Fowler, D. J. Doan, R. W. Hunt, C. H. Swift.

For Director—2-year-term: J. Russell Ellis, U. W. Johnston, Gordon C. Ewing, Frank B. Newton.

For Director—1-year-term: P. J. Sergeant, J. I. Tabor, C. H. Doyel, W. O. Beasley.

NEW YORK

At a meeting of the Bronx County Chapter of the New York State Society of Professional Engineers at Concourse Plaza Hotel on June 8, it was voted that the Chapter is heartily in favor of a Bill before the first session of the 76th Congress of the United States known as H. R. 6471, a bill to amend the Patent Litigation Act of March 3, 1911 (U. S. C. title 28, sec. 109) by Mr. Celler, May 23, 1939, and referred to the Committee on Patents.

Engineer W. L. A. Arctander, President of the Bronx Chapter has written to Engr, Frederick H. Zurmuhlen, President, New York State Society of Professional Engineers, Inc., requisting him to notify the National Society in Washington, D. C. that support of this measure is urgently requested and that all steps be taken toward favorable action by Congress.

—

President Arctander, officers, members, their wives and friends attended a dinner meeting at Murrays, Bronx River Parkway, Tuckahoe, June 28th.

A social evening with dancing was enjoyed by all those present, bringing to a close a successful season for the Chapter.

No further meetings will be held until the next regular meeting in September.

Prizes were awarded recently to successful contestants in the essay contest conducted by the Bronx County Chapter the New York State Society of Professional Engineers.

The prize winners were:

John J. Slavin, First Prize, Cash award of $25.00, Manhattan Preparatory School.

Mary Hayes, Second Prize, Cash award of $15.00, Academy of Mt. St. Ursula.

John Keane, Third Prize, Cash award of $10.00, Fordham Preparatory School.

Certificates of Merit were awarded to:

Frances L. Dongan, Louise Ellis, Norma Kane, John Lawler, Teresa McNeilly, Niall F. O'Doherty, and R. O'Donnell.

The meeting was held under the Chairmanship of the Hon. Alexander Haring, Past President of the Chapter.

The Hon. Eugene G. Schulz, Secretary of the Borough of the Bronx, gave the principal address of the evening.

President Arctander of the Chapter, welcomed the winners, the School representatives, the Engineers and their friends. He stated Engineers had left their marks down thru the ages since the time of the Egyptian pyramids. No one, he said, is permitted to practice Engineering unless licensed by the State.

The Hon. Alexander Haring presented the awards.

Engineer Diamond, Chairman of the Essay Committee thanked the contestants and the Schools for participating and for their support.

Brother Charles of Manhattan College High School, in his address said, "The Engineer is a Professional Man and should influence those around him for good."

An enjoyable selection of music was given by the students of Fordham Preparatory School, Mt. St. Ursula Glee Club, and Manhattan College.

ALBANY COUNTY CHAPTER

New York State Society of Professional Engineers Report of Special Activities Committee
February 1938 to May 1939, Inclusive

The Special Activities Committee as now constituted has carried on from February 1938 to May 1939 inclusive. During this period, the Committee has arranged for six Chapter meetings and one Zone 5 meeting, at the University Club, and two State conventions of the New York State Society of Professional Engineers, at the Ten Eyck Hotel. The Chapter also participated in a Zone 5 meeting at Schenectady in May 1938, and a Zone 5 meeting at Troy in April 1939.

The Zone 5 meeting at the University Club, Albany, in February 1938, was one of the outstanding events in the Committee's span of existence, because at this meeting the late Colonel Frederick Stuart Greene, then Superintendent of the New York State Department of Public Works, was presented by our president, with a certificate of honorary membership in our Albany County Chapter.

Another meeting of particular interest was the one in March 1938, which holds the record attendance for our Chapter meetings, (about 100 persons). At this meeting, Dr. Phillip Thomas of the Westinghouse Electric and Manufacturing Company gave a demonstration lecture based on modern scientific research.

The April 1938 meeting was of timely interest, featuring engineering planning and construction problems at the New York World's Fair.

At the meeting in October 1938, Professor Spafford's address on economics was quite enthusiastically received.

The next three Chapter meetings, December 1938, January 1939 and February 1939, were grouped around one subject, of vital interest to all of us, namely, the natural resources of our State.

The December meeting related to the natural mineral springs at Saratoga, the January meeting related to the salt industry in Syracuse, and the February meeting described the gas and coke industry in Troy.

The average attendance at our six Chapter meetings was 60. The maximum attendance was 100, and the minimum attendance was 45.

On the average, 80% of the attendance at our Chapter meetings were Chapter members, the remaining 20% being special guests, members of other Chapters, and non-members engineers interested in the profession.

The informal dinners preceding the meetings in honor of our guest speakers were well attended, 16 to 20 people usually being present. The social period following the meetings were also well attended, and seemed to bear witness to an increasing amount of enjoyment derived by our engineers in the social contacts made at our Chapter meetings.

Charles H. MacCulloch
Peter F. Gaynor
Saul D. Harvith
William C. Markham
John L. Harvey, Chairman

NASSAU COUNTY CHAPTER

The New York State Society of Professional Engineers, Inc.

FREDERICK W. MALKMUS, *President*
SIMON E. HUNT, *Vice-President*
CHARLES W. WECKERLE, *Treasurer*
FREDERIC J. BUSE, *Secretary*

The Nassau County Chapter held its second annual field day at the Lawrence Village Park Golf Course in June, when a large group of members and guests, including delegations from the neighboring chapter of Suffolk and Queens, played golf and otherwise enjoyed Country Club life.

In the evening, after the dinner, Engr. Frederick W. Malkmus, Chapter President, acting as toastmaster presented Engr. John C. Guibert, Commissioner of Public Works of Nassau County, who felicitated the Chapter on the success of the day's business, *and* Arch't Paul F. Jagow, President of the Long Island Society of Architects, an old friend of the Chapter *who* discussed briefly the relations existing between the two professions. The speaker of the evening was President Frederick H. Zurmuhlen of the State Society, who outlined his plans for the coming year, directing our attention to the great potential strength of the Society in the State.

Prizes for precision in directing the path of the golf-ball and for accurate calculation of the required impact at start-of-flight were awarded by Engr. Frederic J. Buse, Chairman of arrangements, as follows:

Low Gross	Arch't	Paul F. Jagow	Score 76
Low net	Engr.	Richard Williams	Score 68
Driving Contest			
1st	Engr.	Frederick W. Malkmus	
2nd	"	E. W. Wolf	
Putting Contest			
1st	Engr.	C. H. Weckerle	
Runner-up	"	C. P. McFadden	

In accordance with our established practice all prospective members, licensed engineers resident in the county had been invited to attend this affair which is primarily intended to stimulate acquaintance among the men of our profession within the Chapter area and its environs and to promote the increase of Chapter membership. The result was in this instance, particularly gratifying since, after the chairs had been pushed back from the table the gathering broke up into groups and formality faded as the opening notes of popular songs were heard.

John R. Goller,
Publicity Committee

NIAGARA COUNTY CHAPTER

New York State Society of Professional Engineers

RESOLUTION

WHEREAS, The Niagara County Chapter of the New York State Society of Professional Engineers has suffered irreparable loss in the passing of Walter H. Tryon, whose interest, loyalty and efforts for the welfare of the Profession were of inestimable value, now therefore,

BE IT RESOLVED, by the Niagara Chapter that expressions of sympathy be transmitted to the bereaved family of Engineer Walter H. Tryon, and,

BE IT FURTHER RESOLVED, that this Resolution be entered upon the records of the Chapter; the original be presented to the Family; a copy be transmitted to the New York State Society and, to the American Engineer and The Niagara Falls Gazette.

By instructions of the President
And the Board of Directors, this
Tenth Day of August, 1939.

J. W. Naylor, Secretary.

OHIO

MINUTES OF THE SECOND QUARTERLY MEETING OF THE LAKE ERIE SOCIETY OF PROFESSIONAL ENGINEERS JUNE 8, 1939 O. F. SCHOEPFLE—PRESIDENT

OFFICERS AND COMMITTEES FOR 1939

President, O. F. Schoepfle, Sandusky, O.
1st Vice-President, J. B. Nichols, Lorain, O.
2nd Vice-President, W. C. Saladin, Norwalk, O.
Secretary, K. G. Williams, Sandusky, O.

DIRECTORS

Erie County: R. L. J. Wagar, last year, Sandusky, O.; H. F. Gerold, newly elected, Sandusky, O.
Huron County: Carlton Bishop, newly elected, Monroeville, O.; W. D. Terry, newly elected, Norwalk, O.
Lorain County: L. G. Goodell, newly elected, Lorain, O.; H. T. Alexander, last year, Lorain, O.

NOMINATING COMMITTEE:

Harwood Lerch, Chairman, Elyria, Ohio; H. Dunham, E. Androm, G. E. Scott, M. W. Bechberger, E. E. Hartung.

PUBLIC RELATIONS COMMITTEE:

L. G. Goodell, Chairman, Lorain, Ohio; R. Hollis, E. Ankrom, F. Hildebrandt, C. Voight.

PROFESSIONAL RELATIONS COMMITTEE:

R. L. J. Wagar, Chairman, Sandusky, Ohio; G. Scott, H. Dunham, E. V. Emery, H. Alexander.

MEMBERSHIP COMMITTEE:

H. Holcomb, Chairman, Elyria, Ohio; K. G. Williams, W. Terry, J. Rogers, E. Blair, C. Jones.

FINANCE COMMITTEE:

H. Holcomb, Chairman, Elyria, Ohio; K. G. Williams, W. Terry, J. Rogers, E. Blair, C. Jones.

PUBLICITY COMMITTEE:

K. G. Williams, Chairman, Sandusky, Ohio; W. Saladin, D. Patterson, H. Lerch.

DIRECTOR TO STATE BOARD OF DIRECTION:
President O. F. Schoepfle, 908 Vine St., Sandusky, Ohio. Tel. 1318-W

The Lake Erie Society of Professional Engineers and Surveyors met in regular session at the Hotel Rieger in Sandusky, Ohio. The meeting was preceded by a dinner served at 7:00 P. M. and called to order at 8:10 P. M.

President O. F. Schoepfle opened the meeting with a brief talk, stating that this was the second meeting of the fifth year and that every effort would be made to uphold the policies, aims and high ideals of this noble profession.

Mr. Wagar suggested that a concerted effort be made to obtain the membership of all registered engineers in Lorain, Huron and Erie Counties

Mr. Ankrom suggests that membership representatives be appointed to serve in each county.

Mr. Ankrom made a motion that a committee be appointed to revise the Society Constitution to conform to the Ohio Society Constitution and to correct certain difficult sections. This motion was seconded by Mr. Wagar and carried by unanimous vote. President Schoepfle acted at once on the motion and appointed Mr. Scott, Norwalk, Mr. Goddell, Lorain, and Mr. Williams, Sandusky, to serve on this committee.

Mr. E. Blair presented the following resolution:

"Whereas, it is common practice for unregistered persons in the employ of various private, State and Federal departments to sign reports, estimates, tabulations, etc., and

Whereas, Persons who are duly registered and are in the employ of private concerns, State and Federal departments also sign such reports, estimates, tabulations, etc., and

Whereas, such reports, estimates, tabulations, letters, etc., are of an engineering nature or pertain to the practice of engineering, and

Whereas, it is becoming the practice of the various aforesaid employers to bestow titles on unregistered employees engaged in the making of such reports, estimates, tabulations, etc., that avoid the word "Engineer" or bestow the title of "Engineer" with various prefixes, to persons who are not registered, and that

Whereas, these reports, letters, estimates, tabulations, etc. are received by persons who may or may not belong to the engineering profession, and

Whereas, a confusing condition has arisen due to the foregoing in the minds of the general public as to the actual status of persons signing such letters, reports, estimates, tabulations, etc., and

Whereas, one of the objects of the Lake Erie Society of Engineers & Surveyors is the protection of the professional status of its employed members,

Now, Therefore, be it resolved, that this society recommends that all of its members in signing their name to any letters, reports, tabulations, estimates or any other papers pertaining to engineering or in connection therewith, add the initials R. E. to their name, this being in addition to any title that may be conferred by the employer,

And be it further resolved, that a copy of this resolution be forwarded the Ohio Society and to the Editor of the AMERICAN ENGINEER."

Mr. Wagar moved that the resolution be accepted. Seconded by Mr. Patterson and passed with one dissenting vote.

For the good of the Society, President Schoepfle introduced Mr. Carlton Finkbeiner, President of the Ohio Society of Professional Engineers, who talked about the engineer and his professional attitude, his background and his relationship to technological advancement of Society.

K. G. WILLIAMS, *Secretary*

NEWS BULLETIN NO. 3.

Since the last bulletin we have learned of the death of Wilbur J. Watson, famous bridge engineer of Cleveland, and William H. Ditto, well-known sanitary engineer of Youngstown. Their passing is a great loss to Ohio engineering. Dr. Watson was a member of your Public Relations Committee. To succeed him President Finkbeiner has appointed E. G. Ankrom of Norwalk.

Local society representatives so far announced to the P. R. and P. Committee are:

Akron: L. J. Hoffman
Cincinnati: A. B. Blackherms
Dayton: E. O. Brown (publicity) & Charles Shook (public relations)
Mahoning Valley: Henry J. F. Waldeck
Maumee Valley: Tom Quinn
Muskingum Valley: L. E. Orth

Positions! That word deserves an exclamation point. Engineers are said to be needed in a number of W. P. A. offices throughout the State. If interested write Mr. G. J. (Garry) Kane, Chief Engineer, W. P. A. in Ohio, Columbus.

Membership: The campaign for new members is going well, 36 applications having come in within the past two months (before June 9). The Dayton and Cleveland societies are giving the other local societies something to shoot at. Keep the good work going!

New members approved are:

Robert Callaghan, Lakewood
Harvey R. Hawgood, Cleveland
Byron H. Thomas, Dayton
Alfred W. Kimmel, Dayton
Ralph F. Ehler, Dayton
Bernard Seitner, Dayton

Past-President Ed Cantwell has donated a trophy to be awarded annually to the local society winning the annual membership contest. Rules for passing around the "Past-President's Trophy" are being drawn up. Now for lively competition.

Sincerely yours,
Committee on Public Relations and Publications

OKLAHOMA

(From "The Oklahoma Engineer," official publication for members of the Oklahoma Society of Professional Engineers.)

With the opening of offices in the Petroleum Building, Tulsa, by the U. S. Army Engineers, the Tulsa district was established, in charge of Capt. H. A. Montgomery. This district, comprising about 100,075 square miles, was formerly administered out of the office of the Southwest division, in Little Rock, Arkansas.

While this office is largely concerned with flood control and drainage projects, the feasibility of the Arkansas River as a navigable stream falls within the purview of their authority and will doubtless receive considerable close study in the near future.

The personnel of this organization will be manned by four or five army officers and will comprise approximately 400 army and civilian employees, of whom about 250 will reside in Tulsa, with the remaining force in the field.

With the appointment of City Engineer, M. C. Shibley, of Tulsa, as Division Engineer of the State Highway Commission in this area, effective June 15th, and the naming of Wm. R. Wooten, as City Engineer, advancement of several members of the City Engineering Department staff has resulted in the city of Tulsa.

Paul W. Gulley, Assistant City Engineer, in charge of construction since 1932, became Principal Assistant City Engineer. J. P. Ligon, of the Engineering Staff of the Board of Education, was appointed Assistant City Engineer in charge of Street Maintenance, assuming the duties of the Superintendent of Streets, which position was abolished upon the resignation of Supt. Fred Steiger.

Other changes included: J. H. Montandon, from Structural

Engineer to Engineer of Design; W. Kirk White, from Draftsman to Chief Draftsman; and Carl K. Lawwill, from Draftsman to Designer.

At a recent meeting of the commissioners of Tulsa County, Engineer Dan W. Patton was chosen to succeed Engineer W. E. Davis, as county engineer. Engineer Patton held this same office a number of years ago, during which time the greater part of the county's paved highway system was built.

With the appointment of Engineer W. Claude Sale to a position with the U. S. Army Engineers Civilian Corps, the O.S.P.E. sees one of its most active and progressive members transferred to a new field of activity. The secretary's letter transmitted a copy of resolutions commending Engineer Sale's past efforts for the welfare of the Society.

WEST VIRGINIA

The West Virginia Society of Professional Engineers published the first issue of its new publication *The West Virginia Engineer* in July.

The staff includes the following: Ross B. Johnston, Editor; Dr. Roland P. Davis, President of the West Virginia Society, Associate Editor; Robert Williamson, Jr., General Manager; with Carl Scholz, J. M. Clark, Sr., E. H. Venable, Mortimer W. Smith, R. S. Simpson, and J. E. Settle, as the Advisory Editorial Committee.

The sixth annual convention of the West Virginia Society of Professional Engineers will be held October 19, 20 and 21 at the Daniel Boone Hotel, Charleston, W. Va.

PENNSYLVANIA

The Philadelphia Chapter of the Pennsylvania Society of Professional Engineers elected the following officers at its June meeting:

President, Frank E. Hahn; Vice-President, Lawrence Costello; Secretary, Henry F. Bamberger (re-elected); Treasurer, Milton H. Blez (re-elected); State Director, Damuel I. Sacks (re-elected); Directors, Robert B. Hudson, Charles A. Bareuther, Sheldon A. Keast; Alfred A. Townsend, for Publicity Committee.

The Erie Chapter of the Pennsylvania Society of Professional Engineers met September 11th for a dinner and regular meeting. Roswell Canfield spoke on the following subject: "Senate Bill 803, An Analogy."

Idaho's Licensing Act

(Continued from Page 14)

Annually, as of June 30th, the board shall submit to the Governor a report of its transactions of the preceding year, and shall also transmit to him a complete statement of the receipts and expenditures of the board, attested by affidavits of its chairman and its secretary.

Section 11. ROSTER.—A roster showing the names and places of business of all registered professional engineers and all registered land surveyors shall be published by the secretary of the board during the month of December of each year. Copies of this roster shall be mailed to each person so registered, placed on file with the Secretary of State, and furnished to the public upon request.

Section 12. GENERAL REQUIREMENTS FOR EXAMINATION AND LICENSE.—Except as herein otherwise expressly provided, no license shall be issued until an applicant has successfully passed a written, or an oral and written examination given by or under the supervision of the board, and the following shall be considered as minimum evidence that the applicant is qualified to take an examination:

(1) As a professional engineer:

(a) Graduation from an approved engineering curriculum of four years or more in a school or college approved by the board as of satisfactory standing, and a specific record of an additional four years or more of experience in engineering work of a character satisfactory to the board, and indicating that the applicant is competent to practice professional engineering (in counting years of experience, the board, at its discretion, may give credit, not in excess of one year, for satisfactory graduate study in engineering); or

(b) Evidence satisfactory to the board that the applicant possesses knowledge and skill approximating that attained through graduation from an approved four year engineering curriculum, and a specific record of eight years or more of experience in engineering work of a character satisfactory to the board and indicating that the applicant is competent to practice professional engineering.

Provided, however, that prior to January 1, 1940, the board, without a written or oral examination but upon payment of the fee of $25.00, may issue a professional engineer's license to an applicant, who furnishes satisfactory evidence (1) that he is a graduate of a school or college, approved by the board, in agricultural engineering and has a specific record of 8 years' experience in agricultural engineering of a character satisfactory to the board.

(2) As a land surveyor:

(a) Possessing the qualifications and having the experience required for license for a professional engineer; or

(b) Graduation from a school or college approved by the board as of satisfactory standing, including the completion of an approved course in surveying and an additional two years or more of experience in land surveying work of a character satisfactory to the board and indicating that the applicant is competent to practice land surveying; or

(c) Evidence satisfactory to the board that the applicant possesses knowledge and skill approaching that attained on completion of an approved college course in surveying, and a specific record of six years or more of experience in land surveying work of a character satisfactory to the board and indicating that the applicant is competent to practice land surveying.

In considering the qualifications of applicants, engineering teaching may be construed as engineering experience. The satisfactory completion of each year of an approved curriculum in engineering in a school or college approved by the board as of satisfactory standing, without graduation, shall be considered as equivalent to a year of experience in Section 12 (1) (b). Graduation in a curriculum other than engineering from a college or university of recognized standing may be considered as equivalent to two years of experience in Section 12 (1) (b); provided, however, that no applicant shall receive credit for more than four years of experience because of under-graduate educational qualifications.

The mere execution, as a contractor, of work designed by a professional engineer, or the supervision of the construction of such work as a foreman or superintendent, shall not be deemed to be practice in professional engineering, but if such experience, in the opinion of the board, has involved responsible supervision of a character that will tend to expand the engineering knowledge and skill of the applicant the board may in its discretion give such credit therefor as it may deem proper.

Any person having the necessary qualifications prescribed in this act to entitle him to registration shall be eligible for such registration although he may not be practicing his profession at the time of making his application.

Section 13. APPLICATIONS AND REGISTRATION FEES.—Applications for registration shall be on forms prescribed and furnished by the board. The application shall be made under oath, and shall show the applicant's education and detail summary of his technical work; and the applicant shall furnish not less than five references, of whom three or more shall be engineers having personal knowledge of his engineering experience.

The registration fee for professional engineers shall be twenty-five dollars ($25.00), fifteen dollars ($15.00) of which shall accompany application, the remaining ten dollars ($10.00) to be paid upon issuance of certificate.

The registration fee for engineers who seek license only as land surveyors and not as professional engineers shall be fifteen ($15.00), which shall accompany the application.

Should the board deny the issuance of a certificate of registration to any applicant after he has taken the examination, the initial fee deposited shall be retained as an application fee.

Section 14. EXAMINATIONS.—When oral or written examinations are required, they shall be held at such time and place as the board shall determine. If examinations are required on fundamental engineering subjects (such as are ordinarily given in college curricula) the applicant shall be permitted to take this part of the professional examination prior to his completion of the requisite years of experience in engineering work, and satisfactory passage of this portion of the professional examination by the applicant shall constitute a credit for a period of ten years.

The scope of the examinations and the methods of procedure shall be prescribed by the board with special reference to the applicant's ability to design and supervise engineering works so as to insure the safety of life, health and property. Examinations shall be given for the purpose of determining the qualifications of applicants for registration simultaneously in professional engineering and in land surveying. A candidate failing on any examination or re-examination may apply for re-examination at the expiration of 6 months and shall be entitled to such re-examination on payment of an additional fee of $15 for each such examination.

Section 15. CERTIFICATES—SEALS.—The board shall issue a certificate of registration upon payment of registration fee as provided for in this Act, to any applicant who, in the opinion of the board, has satisfactorily met all the requirements of this Act. In case of a registered engineer, the certificate shall authorize the practice of "professional engineering and land surveying," and in the case of one registered only as a land surveyor the certificate shall authorize the practice of "land surveying." Certificates of registration shall show the full name of the registrant, shall give a serial number, and shall be signed by the chairman and the secretary of the board under seal of the board.

The issuance of a certificate of registration by this board shall be PRIMA FACIE evidence that the person named therein is entitled to all the rights and privileges of a registered professional engineer, or of a registered land surveyor, while the said certificate remains unrevoked or unexpired but such certificate of registration shall not entitle the person to whom the same may be issued to practice architecture in this state, unless he has also been duly licensed under Chapter 4, Title 53, Idaho Code Annotated, 1932, relating to the practice of architecture.

Each registrant hereunder shall, upon registration, obtain a seal of the design authorized by the board, bearing the registrant's name and the legend "Registered Professional Engineer," or "Registered Land Surveyor." Plans, specifications, plats and reports approved by a registrant shall be stamped with the said seal when filed with public authorities, during the life of the registrant's certificate, but it shall be unlawful for any one to stamp or seal any documents with said seal after the certificate of the registrant named thereon has expired or has been revoked, unless said certificate shall have been renewed or re-issued.

Section 16. EXPIRATIONS AND RENEWALS.—Certificates of registration, shall expire on the last day of the month of June following their issuance or renewal and shall become invalid on that date unless renewed. It shall be the duty of the secretary of the board to notify every person registered under this act, of the date of the expiration of his certificate and the amount of the fee that shall be required for its renewal for one year; such notice shall be mailed at least one month in advance of the date of the expiration of said certificate. Renewal may be effected at any time during the month of June by the payment of a renewal fee to be fixed by the board at not less than Three Dollars ($3.00) nor more than Five Dollars ($5.00). The failure on the part of any registrant to renew his cer-

tificate annually in the month of June as required above shall not deprive such person of the right of renewal, but the fee to be paid for the renewal of a certificate after the month of June shall be increased 20% for each month or fraction of a month that payment of renewal is delayed; **provided, however, that the maximum fee for delayed renewal shall not exceed twice the renewal fee for each year delinquent, but in no event more than $25.00.**

Section 17. PRACTITIONERS AT TIME ACT BECOMES EFFECTIVE.—Immediately after this act becomes effective, the board shall issue a revised certificate of registration, without oral or written examination, to any engineer or land surveyor who has qualified under the statute repealed by this Act and who holds a license, in force and effect, issued thereunder. This revised certificate shall bear the same number as the certificate or license replaced thereby. **Any such engineer or land surveyor whose license to practice has been cancelled and not renewed, prior to the effective date of this Act, for failure to pay the annual renewal fee, shall be entitled to such revised certificate after this Act becomes effective, upon payment of Ten Dollars ($10.00) plus the amount of the delinquent fees at the rate of Two Dollars ($2.00) per year, or fraction thereof, for the period of the delinquency.**

Section 18. PUBLIC WORK.—After the 1st day of January, 1940, it shall be unlawful for the state, or for any county, city, village, school district, irrigation district, drainage district, highway district, or other subdivision of the state, having power to levy taxes or assessments against property situated therein, to engage in the construction of any public work involving professional engineering unless the plans and specifications and estimates have been prepared by, and the construction executed under the direct supervision of, a registered professional engineer; provided, that nothing in this section shall be held to apply to any public work wherein the contemplated expenditure for the completed project does not exceed Two Thousand Dollars ($2000.00), **if the public health or safety is not involved in such work, and provided further that from the effective date of this Act until the 1st day of January, 1940, such plans, specifications and estimates shall be prepared by and the construction executed under the supervision of persons having the qualifications required by the law now in force and relating to such matters.**

Section 19. RECIPROCAL CERTIFICATION.—The board, upon application therefor and the payment of a fee of $25.00, may issue a certificate of registration as a professional engineer to any person who holds a certificate of qualification or registration issued to him by the proper authority of any state, territory or possession of the United States, or of a foreign country, provided that the requirements for the registration of professional engineers, under which said certificate of qualification or registration was issued, are of a standard not lower than that specified in Section 12 (1) (a) or Section 12 (1) (b) of this Act, and provided such state, territory, possession or country will license or issue certificates of registration, without examination and upon substantially the same conditions, to applicants holding licenses or certificates of registration issued by the board under this Act.

Section 20. REVOCATION OF CERTIFICATES.—The board shall have the power to revoke the certificate of registration of any registrant who is found guilty of:

(a) The practice of any fraud or deceit in obtaining a certificate of registration;

(b) Gross negligence, incompetency, habitual intemperance, insanity, conviction of a felony, moral turpitude, or misconduct in the practice of professional engineering or land surveying as a registered professional engineer or land surveyor.

Any person may prefer charges, based on any of the above grounds, against any registrant. Such charges shall be in writing, and shall be sworn to by the person making them and shall be filed with the secretary of the board.

All charges, unless dismissed by the board as unfounded or trivial, shall be heard by the board within three months after the date on which they shall have been preferred.

The time and place for said hearing shall be fixed by the board, and a copy of the charges, together with a notice of the time and place of hearing, shall be personally served on, or mailed to the last known address of, such registrant, at least thirty days before the date fixed for the hearing. At any hearing, the accused registrant shall have the right to appear personally and by counsel, to cross-examine witnesses in his own defense.

If, after such hearing, three or more members of the board vote in favor of finding the accused guilty, the board shall revoke the certificate of registration of such registered professional engineer or land surveyor.

Section 21. THE RE-ISSUANCE OF CERTIFICATES.—The board, for reasons it may deem sufficient, may re-issue a certificate of registration to any person whose certificate has been revoked, provided three or more members of the board vote in favor of such re-issuance. A new certificate of registration, to replace any certificate revoked, lost destroyed or mutilated, may be issued, subject to the rules of the board, and upon payment of such reasonable charge therefore as shall be fixed by the board to cover the estimated cost of investigation and such re-issuance, but not exceeding Ten Dollars ($10.00) in any case.

Section 22. VIOLATIONS AND PENALTIES.—Any person who shall practice, or offer to practice, professional engineering or land surveying in this state without being registered in accordance with the provisions of this Act, or any person presenting or attempting to use as his own the certificate of registration or the seal of another, or any person who shall give any false or forged evidence of any kind to the board or to any member thereof in obtaining a certificate of registration, or any person who shall falsely impersonate any other registrant of like or different name, or any person who shall attempt to use an expired or revoked certificate of registration, or any person who shall violate any of the provisions of this Act, shall be guilty of a misdemeanor, and shall, upon conviction, be sentenced to pay a fine of not less than One Hundred Dollars ($100.00), nor more than Five Hundred Dollars ($500.00), or suffer imprisonment for a period not exceeding three month, or both.

The Attorney General of this state or any assistant designated by him shall act as legal advisor of the board; and all violations of the provisions of this Act shall be prosecuted by the Prosecuting Attorney of the county or counties in which the violations of the Act may be committed.

Section 23. SAVING CLAUSE.—This Act shall not be construed to prevent or to affect:

(a) OTHER PROFESSIONS OR TRADES.—The practice of any other profession or trade for which a license is required under any law of this state; or

(b) NON-RESIDENTS.—The practice of professional engineering or land surveying by a person not a resident of and having no established place of business in this state, when such practice does not exceed in the aggregate more than 30 days, in any calendar year and provided such person is duly licensed or registered to practice such profession in a state in which the requirements and qualifications for obtaining a certificate of registration or license are not lower than those specified in this Act for obtaining the license required for such work, upon examination, and provided further that such non-resident shall file with the board, on or before entering the state for commencing such work, a statement giving his name, residence, the number of his license or certificate of registration and by what authority issued, and the place and nature of the work on which he will be engaged in this state and, upon the completion of the work, a statement of the time engaged in such work within the state; or

(c) RECENT ARRIVALS IN STATE.—The practice of a person not a resident of and having no established place of business in this state, or who has recently become a resident thereof, practicing or offering to practice herein for more than thirty days in any calendar year the profession of engineering or land surveying, if he shall have filed with the board an application for a certificate of registration and shall have paid the fee required by this Act; provided, that such a person is legally qualified by registration to practice said profession in his own state or country in which the requirements and qualifications for obtaining a certificate of registration are not lower than those specified in this Act. Such practice shall continue only for such time as the board requires for the consideration of the application for registration; or

(d) EMPLOYEES AND SUBORDINATES.—The work of an employee or a subordinate of a person holding a certificate of registration under this Act, or an employee of a person practicing lawfully under paragraphs (b) or (c) of this section, provided such work is done under the direct responsibility, checking, and supervision of a person holding a certificate of registration under this Act or a person practicing lawfully under paragraphs (b) or (c) or this section; or the work of a mining engineer of a corporation, individual, or group at individual, in connection with mining operations; or

(e) GOVERNMENT OFFICERS AND EMPLOYEES.—The practice of officers and employees of the Government of the United States whole engaged within this state in the practice of the profession of engineering or land surveying, for said Government.

Section 24. TRANSFER FROM OCCUPATIONAL LICENSE FUND.—Within ten days after the taking effect of this Act, the State Auditor shall determine the amount of money paid into the Occupational License Fund during the biennium of 1937-1938 by civil engineers, pursuant to the provisions of Chapter 10, Title 53, and by land surveyors, pursuant to Chapter 23, Title 53, Idaho Code Annotated, and one-half of said amount shall be transferred upon the certificate of the Auditor by the State Treasurer from the Occupational License Fund to the Professional Engineers' Fund created by Section 9 of this Act, and the amount so transferred may be used for carrying out the provisions of this Act, and shall be paid out only upon vouchers approved and certified as hereinbefore provided relative to the issuance of warrants against the Professional Engineers' Fund.

Section 25. APPEALS.—Any person who shall feel aggrieved by any action of the board in denying or revoking his certificate of registration may appeal therefrom to the District Court of Ada County. Such appeal shall be perfected by filing with the Clerk of the District Court, within thirty days after the action of the board of which complaint is made, a petition setting forth briefly the action complained of and wherein the petitioner has been deprived of any legal right. The petition shall constitute the complaint, and summons may be issued thereon directed to the board and served upon the president or secretary thereof. The pleadings thereafter shall conform to the practice in other civil proceedings. The Court in its decree may sustain or reverse the action of the board and direct the board to take such further or other action as to the court may seem just and proper in the premises.

Section 26. CONSTITUTIONALITY.—If any provision of this Act or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications of the Act which can be given effect without the invalid provision or application, and to this end the provisions of this Act are declared to be severable.

Section 27. REPEALS.—Sections 53-1001 to 53-1014, inclusive, and Sections 53-2301 to 53-2305, inclusive, of Idaho Code Annotated, 1932, and all acts and parts of acts in conflict herewith are hereby repealed.

———•———

TO SOCIETY MEMBERS
AND OTHERS INTERESTED:

The services of Attorney Oliver O. Haga, of the Boise firm, Richards and Haga, have been retained by the Society to insure a technically correct and legally endorsed legislative act.

Until exhaustion of the supply, additional copies of this proposed draft may be secured upon request to the Secretary, P. O. Box 1705, Boise, Idaho.

Copies may be procured also of President W. P. Hughes, Lewiston, and Vice Pres. W. P. Havenor, Pocatello.

The Act as printed herein has been the subject of discussion before many regular meetings of the Idaho Society of Engineers for nearly a year and has been discussed before sectional meetings of the Society in both northern and eastern Idaho.

No branch of engineering has opposed the proposed Act except the Mining group in northern Idaho, because of which they have been omitted from coverage in the Act.

The Agricultural Engineers, headed by the University of Idaho Agricultural Engineering College, have urged inclusion and after much investigation and discussion that branch has been specially covered as indicated in Section 15.

A THOUGHT

In talking with Perry Ford, our National President, on one of the blistering hot afternoons we have had this past month, Mike Bechberger and I were discussing the ultimate of the engineering profession and, in summing up, Perry stated that, assuming an engineer had the benefit of the best training in his field, and a world of experience, he would probably meet with some difficulty on that ladder of success unless he had some of the following points in connection with his experience and training:

1. *COOPERATION.* The ability to work and play with other people without waste or friction.
2. *CONSIDERATION FOR OTHERS.* Caring about others just as you care about yourself. It involves the assumption that mutual consideration is necessary to human living.
3. *INTELLIGENT TOLERANCE.* The assumption that you may not know it all; that, therefore, even when you are sure, you are not impertinent, loud and bullying. A person who has this quality does not look down on those of opposite opinions. It shows the ability to separate "facts" and "opinions" and their respective strength and goodness. It includes a sense of humor.
4. *A GOOD BALANCE.* This means a person who is well-rounded in his interests and activities; who has harmony of the spirit. One who is the same when things go wrong as when they go well. One who is usually at ease in whatever situation he finds himself.
5. *SOCIAL ACCEPTANCE OF AND IN THE GROUP.* Things which are oftenest shown in individual work. A development of group consciousness and ability to abide by group decisions.
6. *EFFECTIVE INTEREST OR CURIOSITY.* Interest or curiosity that causes you to act. It is based on the assumption that you need to learn for yourself. It includes initiative. It is distinct from idle curiosity, which you never attempt to satisfy.
7. *INDEPENDENT OR CREATIVE THINKING.* The ability to put what you know together and form a conclusion. It requires the use of imagination.
8. *SELF DIRECTION IN WORK.* An attitude toward problems that welcomes an opportunity for work without someone telling you what you should do each step of the way. It applies to beginning and carrying through work.
9. *FAITH IN INTELLIGENT METHODS.* This is based on the assumption that there is always a reasonable way out if you search for it. It involves the tendency away from superstition. It gives courage to one who has to keep trying.
10. *KNOWLEDGE OF ONE'S POWERS AND LIMITATIONS.* The ability to tell the difference between: What I want to do now; and What I can do now.
11. *SERIOUS THINKING ABOUT BASIC ASSUMPTIONS.* Thinking about assumptions back of important attitudes and decisions as shown in activities, both physical and mental.
12. *SENSE OF SECURITY.* Based on knowing more and more about what makes security. Based also on knowing more and more about the particular type of success that is most important. Includes those who fail or do not feel secure yhether they know why or not.
13. *THE ABILITY TO ORGANIZE.* The demonstrated power to make a thoughtful and useful pattern of living, or of any specific job. It is based on the assumption that in living, in any job, there are ways of doing and purposes that are better, more efficient, and more valuable. This includes leadership.

So, as Aesop would have put it: "While the world may be the Engineer's oyster, it takes just a bit more than a slide rule to open it."

Yours in thought,

K. G. WILLIAMS

(Lake Erie Society of Professional Engineers, Ohio.)

SELECTION AND ADMISSION IN PROFESSIONS OTHER THAN ENGINEERING

By *A. Dexter Hinckley*

(Conclusion of a Study for E.C.P.D. of the Jualification Procedure in the Felds of Accounting, Architecture, Law, and Medicine)

It is most apparent from the expressions of thought in each profession that an unsatisfactory job is being done on the selection and admission of new practitioners. Admission to the bar requires the hurdling of one major barrier—the bar examination. Calculated to assay applicants with widely varying backgrounds and training, it ultimately passes over 90 per cent of all applicants into the profession. On first trial it is customary for less than 20 per cent of those attempting the American Institute of Accountants' examinations to pass. After numerous appearances somewhat over 50 per cent finally do pass the examinations.

In medicine, the largest part of the weeding-out process is done during the years of preprofessional training, and actually but 50 per cent of all applicants are accepted into the medical schools. Coming then almost universally through "approved" medical schools, the graduates experience no difficulty with the examination set up by the state. A similar adequacy of training, college and practical, serves to prepare architects for their formal admission to practice.

We see therefore a partially successful solution of the major problem—the extension of training, with more exposure to the character building influences of the undergraduate college—practiced most successfully by the professions of medicine and architecture. Quantitative measures cannot be made of the success of the solution of this problem but the example will undoubtedly be followed by law, engineering, accounting, and other professions.

NEW JERSEY NOTICE

September 2, 1939

Officers, Trustees and Concerned Society Members,
New Jersey Society of Professional Engineers, Inc.

Gentlemen:

Assembly bill A599 is still in the Senate where it can become a law. The Legislature reconvenes on September 25th.

There is a new state society of professional engineers.

No person has been designated to represent this Society in the legal procedure to contest the seat of Mr. Remington on the State Board.

The Appeasement Committee is to report.

A Convention is scheduled for January 12th.

These and several other very important items of business are to be acted upon at the meeting of the Board of Trustees of the NJSPE to be called at the Robert Treat Hotel, Newark, N. J., at 8:15 P. M., Tuesday evening, September 19th, 1939. A full attendance of State Officers and Trustees is essential. All Chapter Officers and members of the Society who are interested in its preservation are invited to be present.

Arrangements will be made for dinner in the main dining room at an "Engineers Table" at 7:15 P. M.

Yours truly

Spencer C. Hamilton Jr., President

Frederick D. Braun, Sec.-Treas.

Brief of 12th Annual

(Continued from page 11)

Senator Desmond has been instrumental for the past ten years in advocating social legislation to the state and society. The architects and engineers will reap the benefits of the Senators far-reaching foresight.

Engineer Tuck contributed a sum of money with which to employ counsel to help the Society curb reputed illegal practice of the profession. The Society has been dissatisfied with the lack of enforcement of the statute on the part of the Attorney General, the State Civil Service Commission, the Public Service Commission, and other State Departments who have interpreted the will of the legislative body to suit their own viewpoint. If the legislative will is to be ignored by some of the State Departments, the Society believes test cases should be brought to the attention of the court for adjudication.

It was pointed out at the meeting that from 19 to 25% of the men affiliated with National Engineering Societies are not in fact engineers, but are encouraging the use and publication of their names in engineering rosters, connoting the idea that they are, in fact, engineers. The Society has determined to ask their discontinuance of the use of the title engineer, unless they have been licensed by the State to practice the profession. The Society has determined to protect its official legal designation and to prohibit the illegal use of the title "Engineer."

The Statute of the State prohibits the use of any sign, card, or device, utilizing the words "engineer" or "engineering," except by those licensed by the State to practice the profession. The publication of a person's name in an engineering society's roster connotes the idea that the person is an engineer and that he has permitted or encouraged the use of his name in conveying a wrongful impression.

Engineer Fox, the Corresponding Secretary, reported on membership, stating that there has been enrolled in the Society upwards of 3900 engineers and that our membership for the fiscal year closing June first was 4 per cent net increase. Discussion disclosed that few membership societies are increasing their enrollment in these times.

A Challenge to . . .

(Continued from page 6)

prior to 1920, but in that year the laws which had recognized the man who memorized Blackstone, or who took the oath of Hippocrates or played with double entry books, or compounded pills, as belonging to a class which might be dignified as a profession and subject to qualifying laws, made amends and there appeared in our statute books a chapter defining an engineer and regulating admission to the practice of this profession.

Without pausing to comment on the belatedness of this salutary law which recognizes that the skill to plan and build a Boulder Dam or the works, processes, machines, and equipment in the great chemical, mining and utility field is just as professional as that needed to compile a brief or dress a wound, and that a mistake in plans or calculations can be just as dangerous to life, limb and property as a careless audit or a wrong prescription, it must be said that the status of the engineer underwent a revolution. What had been a heterogeneous mass of individuals became now a homogeneous group. It was only natural that the bar association and the medical society should have their counterparts in the case of the engineers in a similar society. The answer is the New York State Society of Professional Engineers with local chapters in 24 counties in the state.

The Society Accounts for its Stewardship

During the years since its inception the Society has established a high ethical standard for its members and has co-operated with the public and the law-makers in making and keeping the law workable and equitable. This latter phase of its work has not been the least important of its tasks. A new law of this character, vital as it may be to the community, is bound to create some difficulties and even hardships. It is only by closely following its operation and making the necessary changes, that it can be refined as needs arise and made to effectively serve its purpose. The real danger is that such a law, after a time, is complacently permitted to become a dead letter. The Society has been watchful, and wise supplemental acts of the legislature and judicious administration of the law, have made it function and fulfill the purposes for which it was passed.

Incidentally, forty-four states now have similar laws, and numerous instances of the efficacy of these laws in the various states, may be noted. For instance plans cannot be filed except by licensed engineers or registered architects and building construction generally cannot be supervised by other than licensed engineers. Some states will not enter into engineering contracts with firms whose principals are not licensed engineers, and there have been many prosecutions of persons practicing illegally without a licenese.

Other Engineering Societies

Of course we have always had our American Societies. The college professor anxious to be impartial might refrain from urging his students to join our Society in preference to some other one. He might deem it better to have each individual decide for himself what societies he wished to join, but if the professor is in sympathy with the licensing law, and if he believes the licensed engineers should have their own society similar to those in the legal and medical professions, we feel he must be compelled by the true facts to select our Society created and designed specifically to serve the engineer in his status as a licensed professional man. It is a society of licensed engineers, exclusively.

The American Societies are excellent organizations and they have filled a need for the engineer. The writer is a member of both the Civil Engineers and the Mechanical Engineers. With their large memberships and resources they have enabled the engineer to do many things collectively which would have been beyond him as an individual. At their meetings distinguished engineers give their fellow members the advantage of their invaluable knowledge and experience in the theories and practices of the science. Their memberships contain a concentration of the engineering skill, brains and ingenuity of the country. But from the very brilliance of their membership the young engineer must experience the sensation of having gazed too steadily at the sun. He is eligible for membership but only as a colt member and it is not until years later that he earns the further privilege of becoming a full fledged member.

In contrast to this the Society has but one kind of membership. A record of distinction is not essential to attain that membership. The common denominator for admission is a license to practice engineering, and of course, a good moral character.

If with the advent of the licensed engineer the American Societies had been the logical medium for organizing the engineers, is it not natural to suppose that the pioneers of the movement would have attempted to use these American Societies for that purpose? Instead they created the Professional Society, and it is significant that some of the prime movers and hardest workers in our Professional Society, were and still are members of the American Societies. They realized fully that the American Societies while venerable and august bodies, to which it is an honor to belong, were not adapted to the new purpose. The dues are high and so is the eligibility factor for full fledged membership. They are admirably suited for those engineers whose brilliant accomplishments are behind them and over whom there has already descended a halo of distinction in the profession.

The Engineering College and the Society

Do our educational institutions owe anything to the Professional Society for its relation to the engineering students whom each year they launch upon the world? Just consider this. Looked at in its ugly nakedness the engineering college, after all is said, undertakes to teach young men the rudiments of engineering for so much a head. The process is figuratively like the huge assembly line of the mass production industries. Each June they send out their finished graduates. Each September they take in the raw materials which will be the finished product four years or more hence. It is a peculiar phenomenon of the automobile industry that acute as are its leaders, it happens now and then that due to economic conditions or the whims and fancies of the purchasers, the distribution of automobiles throughout the country by thousands of dealers, strikes a snag. Production has been geared to high. The public has suddenly retrenched. The storm signals have escaped the scrunity of the leaders, and the truth is only realized when the backwash rolls into Detroit itself.

It Can't Happen Here?

This has never happened on a major scale to our engineering schools. It would be a calamity if it did, and

we trust we shall never see it, but the colleges should feel more comfortable in the knowledge that out in the hinterland the Professional Society is in the field, keeping order where otherwise chaos might prevail and making more easy the transition between the graduate student and the licensed professional engineer.

Pulling Whose Chestnuts Out of the Fire?

Should the professor whose livelihood is teaching engineering be interested in all this? We think so. His fortunes will rise and fall with those of the profession. If he is a licensed engineer he should be a member. Our problems, our difficulties, our dangers, are his as well. Is it right that the now too few Society members should toil and sacrifice for the common good of all while the professor sits quietly on the side lines? It should be an inspiration to students to know that the professors teaching them are members of the Society of the profession which is the final goal of their studies. It is not a question of the college professor pulling somebody else's chestnuts out of the fire. It is the common problem of all of us and ultimately we must swim or sink together.

The Minimum of Assistance

The co-operation asked is not very much. We would like the deans and the professors to weigh what has been said in this letter about the engineer, his profession and his Society, and if they feel that our contention is substantially correct, to do what they can first, to impress upon their alumni their duty and their responsibility to join the Society which represents their profession and assist to their utmost ability in its work, and second, to make their undergraduates conscious of the Society and its work, so that when they enter the world and receive their licenses they will not go their own way in the profession as *isolated individuals* when there is at hand a Society whose sole purpose is to constantly improve, and better the profession for the men working in it.

The medium is at hand for those professors who will volunteer their assistance. The National Society of Professional Engineers has its own monthly publication, the American Engineer. Our college professors, if they have no more time than the other members of the profession, at least are apt to have more ability in writing interesting articles for this publication, which will foster the work of securing new members. The editors would be grateful indeed for such contributions.

In addition most colleges have their student magazines, and in line with the desirable task of keeping undergraduate students mindful of the Society, a few words now and then from the deans and professors to their students would be like the sower's seed which fell upon good soil.

Acknowledgments

We have particular cause to be proud of the record of the New York State Society. It was first in the field due to the untiring efforts to Dr. D. B. Steinman, Hon. Arthur V. Sheridan, Major James M. Welsch, the late Arnold G. Chapman, J. C. Riedel and Alfred E. Roche, who in turn directed its affairs. It took the form of a State Society composed of local chapters operating under charters from the parent society. Kings County Chapter was one of the first.

It was realized early in the Society's existence that the licensing of engineers should not be localized in one or a few states but should be nation-wide. As stated previously, forty-four states now have licensing laws for engineers. Dr. Steinman and Engr. Sheridan traveled from coast to coast pleading for similar societies in the various states with such laws and assisting in their creation. As a result there are now twenty-two state societies and one in the District of Columbia and their work is correlated by the National Society of Professional Engineers with headquarters in Washington, D. C. Perry T. Ford, President, and Willard S. Conlon, Executive Secretary, have worked effectively, and with Alfred E. Roche, President of the New York Society to continue the fine work of their predecessors.

Senator Desmond of the New York State legislature is a member of our Society. He was largely instrumental in establishing the licensing law and many supplemental acts which have strengthened it.

These are only a few of the many names which have been associated with this movement. The chapter presidents, committee chairmen, committee members and chapter members have all contributed their share, and the gratifying results have been made possible by our friends in the legislature who grasp the importance of the licensing law.

The National Society holds an annual meeting in a different city each year, and our State Society also holds an annual meeting in New York City each Spring. It would be particularly gratifying to both societies to find these meetings well attended by our college faculties. Won't you come? Won't you help us to expand?

Here and There

(Continued from page 4)

Barter—Does it make a difference who does it?

If some agencies do it, they are accused of having communistic tendencies. You should be the judge. The material following is merely for your consideration. However, it does appear as though this is unfair competition, as the Consulting Engineers (some of whom may be graduates of this institution or others where the practice prevails) have to meet their payrolls, rent, taxes, etc., without assistance. *Are* the *returns* worth the harm to the engineers employed in these industries and to the consulting engineers?

We quote from the paper of a larger Eastern University, Department of Electrical Engineering (the italic are ours): "University Professors in all branches of learning are called upon at *frequent* intervals to give their time, their advice and experience, to assist with industrial, commercial, professional and other *off-campus* activities. Electrical Engineering has not been *spared* this *opportunity* for *public service.*"
Is free engineering service to industry a public service?

"It has its returns, however, for often the companies concerned while not *giving compensaton* to the professor, see that he receives newest and best equipment available. In one case a particularly grateful concern gave the department equipment worth $8,000 as evidence of its appreciation. At another time a *few favors* for another company brought in $700 worth of added equipment."

In most instances the engineering professors are not responsible for these conditions; the responsibility lies elsewhere.

"Engineer Paid Before Reporting"—

Appears as headlines in a newspaper of a large city *as though a retainer fee to an engineer* was any DIFFERENT THAN A RETAINER FEE TO A LAWYER! There is a lot of educational work to be done.

Legislation—Vermont—Adopts professional engineers license law (42d State) Delaware—Bill was lost by one vote.

District of Columbia—S. 1128, the same as H. R. 4792, except for some minor amendments, was passed by the Senate, July 18 (Ref. Congressional Record of that date, p. 13098). An attempt to place H. R. 4792 on the House Calendar for immediate consideration was voted down by the House District Committee on July 21. Thus the bill which could stand some revamping in the best interests of the engineering profession in the District as well as to the whole registration movement, has been referred back to the sub-committee.

Cooperation—which we appreciate; also evidence of progress:

"The Society is to be congratulated on its efforts to dignify the title of engineers."

*** State College: "Thank you for the Resolutions, etc. They are very timely."

"In answer to your letter of June 29, we will say the title 'Fermentation Engineer' was used by us on one occasion; cards which announced a change in address. We did not know that its use would give offense to anyone, anywhere. We assure you it will not be used again. Thanking you for calling the matter to our attention, we are,

Yours very truly,
Lithgow Corporation, J. L. Hollings,
Eastern Sales Mgr."

From U. S. Labor Department:—

"Thank you for sending the literature and the material concerning the professional engineers license laws. We appreciate your present help and your offer of future assistance, and we shall certainly avail ourselves of your kindness and cooperation."

These are samples of many like communications indicating N. S. P. E.'s service to the engineering profession.

N. S. P. E.—Is cooperating with all Government Agencies and particularly the U. S. Civil Service Commission regarding classification of engineering positions. N. S. P. E. recently suggested the elimination of such job titles as: "Fumigating Engineer", "Guarantee Engineer", Sculptural Engineer", "At Large Engineer", "Recreational Engineer", "Parachute Engineer", and recommended more appropriate titles.

At the suggestion of N. S. P. E. an important organization withdrew its proposal to advertise for bids for Consulting Engineers services when they were questioned as to whether they were also going to *attempt* to *secure bids* for *legal* and *medical* services!

Employment Opportunities—Philadelphia Bulletin, p. 16, 2-23-39, "Whole Class Got Jobs". Mitchell, who heads the department of mining engineering of Pennsylvania State College, said all students graduated from his department in June have had jobs for several weeks. "In fact", he added, *"we are receiving requests for mining engineers we cannot fill."*

You mining engineers unemployed please note!

Employment Claims checked. Federal Trade Commission checks Employment *Claims*—

A Philadelphia Corporation, the Jourdan Diesel Schools, Inc., distributor of correspondence courses concerning Diesel engines, agrees that it will cease and desist, among other things, from overestimating and misrepresenting the demands for employment in the Diesel field.

Professional Engineers—WARNING!

Eternal vigilance is the price we pay for our liberty. The right to determine minimum qualifications to practice professional engineering which had been assumed and indirectly controlled by others was returned to the people through your State Board of Engineering Examiners who are accountable not to "private industry" but to "you" who constitute the engineering profession, through your duly elected representative the Governor of your State.

You who fought for and secured the enactment of your professional engineers license laws against many odds and in most cases without the help of the technical societies, excepting Am. Soc. C. E., should take heed immediately to what appears to be the beginning of an attempt to render ineffective your efforts. Many of your opponents were sincere, others represented interests whose purpose apparently was to continue the status quo of, among other things equally important, the impotency of the professional engineer so evident before the advent of your State Society of Professional Engineers and the National Society of Professional Engineers.

Your funds, time and efforts were expanded in promoting license laws, therefore you should know that the American Institute of Electrical Engineers does not agree with your judgment and has drafted what *THEY THINK* should be used as a model law.

From the Statement of Principles underlying A. I. E. E.'s model law we quote No. 4 "To assure these conditions it is not necessary that all engineers be subject to legislation but only those who offer service for hire, or are public employees."

But first, let us see who did the thinking, was it the membership of A. I. E. E.? No, apparently they are incapable of deciding such things and a committee was appointed. Were these men selected to represent a cross-section of the electrical engineers throughout the country? Or was it an accident that they all were affiliated in one way or another with industry?

It will suffice to indicate their connections as per the 1937 year book of A. I. E. E. at which time the members were respectively employed by: The American Telephone and Telegraph Co.; the Brooklyn Edison Co., and the General Electric Co.

One wonders (1) why there were no private practitioners on the committee;
(2) why the entire committee was selected from New York City;
(3) why the whole membership of A. I. E. E. (including those members who do not live in New York) were not accorded an opportunity to voice their opinion with respect to the professional engineers license laws, as is *STILL* customary in all democratic institutions;
(4) why public utility men dominated the committee;
(5) by what right A. I. E. E. specifies what the qualifications of land surveyors shall be.

Those of us who are members of the A. I. E. E. for many years may question which is of paramount interest—the interests of Society and the Engineering Profession or the interests of those who are opposed to engineering registration.

Quicken your efforts to build stronger State Societies and watch your registration laws.

PROFESSIONAL DIRECTORY

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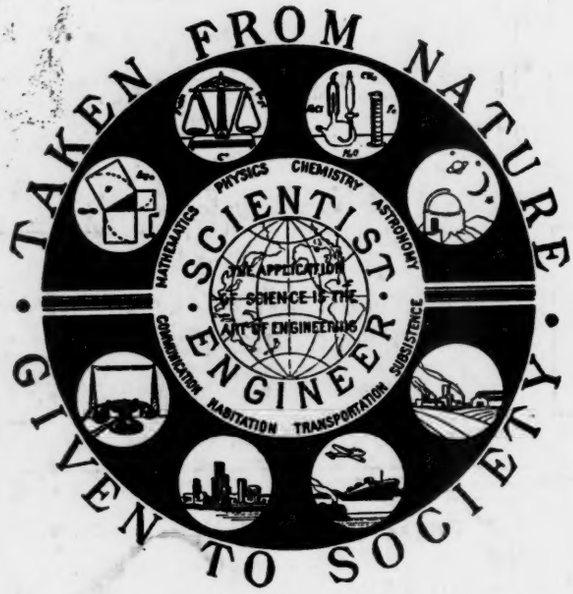

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